A GEOGRAPHICAL AND STATISTICAL MEMOIR OF A SURVEY OF THE NEILGHERRY MOUNTAINS,

BY THE

LATE COLONEL OUCHTERLONY. 1847.

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THE Neilgherries, properly so called, comprise two distinct tracts of mountainous country, the one called the Neilgherries, or "Neilgherries proper," and the other the "Koondahs." The survey of the latter yet remains to be completed, and hence the statistical data here recorded, relate exclusively to the former region.

Area.

The area of the plateau of the Neilgherries, as defined on the north-west, north, east, and south, by the crest of the mass of mountains, and on the south-west by the outline of the "Koondahs," is found by the present survey to comprise 268,494 square acres in its geographical extent: but owing to the ceaseless undulations prevailing over the whole surface, a far greater amount of land is actually available for cultivation.

Of this quantity only 23,772 acres have been brought under cultivation, leaving 244,772 acres either entirely waste, or appropriated for grazing cattle by the various Hill tribes.

Geological structure.

The geological formation of the Neilgherries is of the primitive igneous order; the mass or nucleus of the mountains being granite, frequently passing into sienite.

In every part of the Hills innumerable dykes or channels of basaltic rock, hornblende, quartz, and other minerals commonly found in a similar relation to rocks of the primitive class, intersect the granite, in some instances of considerable magnitude, but more commonly broken into small ramified branches or veins.

In the Koondahs trap rock is more extensively developed, being often found in that part of the district capping the Hills, and spreading out

to a considerable extent; but a description of the geology of the Koondahs does not enter into this memoir.

Hornblende rock is also found to occur in some abundance in various parts of the Hills, passing occasionally into hornblende slate, and porphyritic hornblende, having garnets imbedded. This rock is highly ferruginous and decomposes into a stiff red clay which forms extensive beds underlying the soil in many parts of the Hills. It intersects the granite and sienite in deep channels or dykes, which having a greater tendency to decomposition than those rocks, frequently occasion chasms, in which water lodging and wearing away the sides become the cause of the disruption of the large masses, which are continually parting from the parent rock, especially after heavy rains.

No stratified rocks make their appearance in any part of this district except at the N. E. angle of the plateau, where, on descending towards the plains, beds of gneiss are met with, but so torn and distorted as to render it almost impossible to derive from their occurrence any geological data of value. The run of the beds however may be pronounced about north and south, the dip being to the east at an angle varying between 30° and 60°. Near the junction with the granite which forms the country in the neighbourhood, the gneiss is much altered, and veins of igneous rock perforate it in all directions.

Gneiss.

I examined this part of the district with much interest, both on account of the highly metalliferous character which this rock usually possesses in other countries, especially as in Saxony its occurrence is marked by the same accompaniments as I have described, and in the faint hope that beds of primary limestone might be found to occur in the vicinity; this mineral, which is not found in any part of the mountains, being much needed both for architectural and agricultural purposes.

Limestone does not occur.

With the exception of this gneiss formation, the whole of this mountain tract is of primitive igneous structure, granite and sienite alternately appearing as the base of the Hills, while at the same time hornblende rock, basalt, and occasionally greenstone, are found protruding in masses and channels so extensively, as often to give their peculiar character to the rock formation for considerable distances.

Metalliferous deposits do unquestionably exist in the Neilgherries. Ores of copper (pyrites) and lead (galena) have been found embedded in quartz, but unfortunately not in situ, being merely portions of blocks of stone found in the walls of some

Metalliferous deposits.

Ores of copper and lead.

"cairns" or ancient places of sepulture, in the neighbourhood of Nunjenaad, not far from the foot of the Koondahs. The circumstance was brought to the notice of Government some time since (I believe by Dr. Burrell and Captain Congreve), when I was directed to co-operate with the latter officer in instituting an inquiry as to the origin of these orey blocks. Captain Congreve however shortly after left the Hills, and though I have taken advantage of every opportunity which offered to pursue the desired object, I am sorry to say my efforts have not been crowned with success, for although many large channels of quartz occur in the neighbourhood of the spot where the blocks were found, and all running in a true metalliferous direction, east and west, I have not been able, though I have traced them a long distance, and crossed their backs in various parts, to detect in any of them a trace of ore, or any of those peculiar indications on the surface, which would elsewhere characterise a vein or lode bearing ores of either copper or lead.

The Todars dwelling near the spot declare their belief that the blocks were brought from the "Koondahs," and although this can be little better than surmise I should certainly say from the aspect of that range of mountains, that deposits of ore are more likely to be found in it than in the Neilgherries. It bears much more the look of a mining country; and the violent igneous action which has evidently prevailed amongst its rocks after theirformation, favors the expectation that metalliferous deposits will be found there, if they exist in quantity anywhere about this mountainous district.

Manganese.

The black oxide of manganese is found about the Hills in many places, existing in small veins and retiform deposits; but I do not think it could be profitably worked, as the continuance of a supply in a particular spot could not be depended upon, and it could not moreover be brought into any home market, at a sufficiently cheap rate to compete with other ores.

Laterite.

Laterite is also found in various parts of the Neilgherries, generally in an advanced stage of decomposition, forming a lithomargic clay, which underlies the soil of many tracts of land. I observe the existence of laterite most frequently where the sienite contains much hornblende, which favors the belief that it is the result of decomposition of the primitive rock, hastened by the action of the atmosphere upon its excess of ferruginous matter. A bed of this rock occurs near Kaitee sufficiently indurated to be fit for quarrying for building purposes—but no use is made of it by settlers owing to its being more costly than bricks.

Ores of iron are met with in many parts of the Neilgherries, occurring in small veins, and disseminated through the mass of the rock enclosing it, but nowhere (that I have seen) in sufficient quantity to be worth working.

Ores of iron.

A great many varieties of ores exist, more interesting to the mineralogist than to the statistical recorder.

Hematites, specular iron ore, micaceous iron ore, magnetic iron ore, and iron pyrites, are all found in insignificant specimens.

Hematites.

Pebbles of agate and semi-opal are occasionally to be met with in mountain streams after heavy rain, and would, I doubt not, with corundum, be found more abundant, if persons, who had time to bestow in the pursuit, were to search for them.

There is another mineral which occurs in some abundance on the Neilgherries which might I think—especially in the hands of European settlers—be turned to some economical use.

It is a decomposed feldspar, or "kaolin," of which very tolerable earthenware might be manufactured.

The soil of these mountains, speaking of course chiefly of the plateau, is for the most part exceedingly rich and productive, a circumstance for which the observer would not be prepared on witnessing the granitic or sienitic base upon which it rests; since it is usually seen that granitic districts are bleak and barren, owing to the resistance to decomposition offered by the silicious materials of which they consist.

Soil.

This advantageous contrariety may, perhaps, be accounted for by referring the formation of so much rich soil to the existence of the numerous dykes of rock, whose decomposition is more favorable to its production, especially those of trap and hornblende, the decomposed particles of which, mixing with the quartzose and clayey products of the granite, result in the formation of a soil peculiarly adapted for cultivation.

The great mass of the Hills also has evidently been under grass, and undisturbed by the plough or the mamotie for ages, and as the frosts which occur at the close and beginning of the year in most parts, kill the grass down to the roots, all this decomposed vegetable matter, washed in by the succeeding rains and mixing with the subsoil, continues, and has continued, season after season, to increase its richness, and cause it to penetrate further and further into the poorer subsoil, until the extraordinary depth of rich black mould, which is often observed in the cuttings of a new road, is produced.

The finest patches of land are naturally found on the lower slopes or second steppes, in situations where the conformation of the country has favored the accumulation of soil washed from the Hills above, and especially where forests have aided to retain that soil from further denudation by their roots, and have for ages nourished it by their leaves. The chief agricultural tribe on the Hills, the Burghers, seem well aware of this, and the consequence is that in all parts where they cultivate, the face of the country is entirely clear of wood.

Want of Lime.

The chief defect of the soil of this district is the absence of lime, but a very minute quantity of which enters into the composition of the greater part of that under general cultivation at the present time, and as it is too costly an article to be brought up from the plains to be applied as a dressing to the land, considerable deterioration must be going on in its productive capacity. I have remarked that the finest fields are those which are situated near any considerable mass of hornblende rock, and hence it is to be inferred that the superiority of the soil is due to the lime which it receives from its decomposition. Specimens of this hornblende reduced to powder and digested in dilute nitric acid, give a copious precipitate with oxalate of ammonia, showing upon estimate (for I had not the means of collecting and weighing the precipitate), a proportion of at least 8 to 9 per cent. of lime entering into the composition of the rock.*

Drained Swamps.

The extensive and numerous swamps which occur on the Neilgherries also, when drained, furnish most valuable soil, either for cultivation *per se*, or for top-dressing for poor land. But in this latter form it is never used by the Hill cultivators, who are very backward in the knowledge of the uses and properties of particular manures, as will be treated of under an ensuing head, viz., "Modes of cultivation."

Natural aspect.

The Neilgherry mountains constitute one of those singular features presented in the physical geography of Southern India, of comparatively isolated masses

* Kunker or fresh-water limestone is found at Metapollium and Segoor in various sized nodules; it is either found lying on the surface, or quarried from the soil; some varieties of the Kunker are stained of a reddish colour with peroxide of Iron which they contain in small quantities. The Kunker is burnt and slaked to convert it into Chunam, and then carted to Ootacamund and other localities. Sometimes the Kunker itself is taken in the state in which it is found from the abovenamed places for subsequent conversion into lime and use for building purposes on the Hills.—Ed.

up-reared amidst the vast plains which extend over the surface of the country, pointing either to foci or points of ancient volcanic eruption by which they have been formed, or to evidences of the wearing agency which has reduced the surrounding tracts to their present remarkably uniform level state; while mountain masses, forming a core of tougher substance, and of material less prone to decomposition, have resisted the corroding action—and have been thus left in the form of isolated and mural precipices, towering above the surrounding country.

The summit or plateau of these mountains presents a most varied and diversified aspect. Although the land extends over its limits in ceaseless undulations, approaching in no instance to the character of a champagne country, and frequently breaking into lofty ridges and abrupt rocky eminences, it may yet, speaking in general terms, be pronounced smooth and practicable to a degree seldom, indeed I believe, in no instance, observed in any of the mountain tracts of equal elevation which occur in the continent of India.

On all sides the descent to the plains is sudden and abrupt, the average fall from the crest to the general level below, being about 6,000 feet on all sides, save the north, where the base of the mountains rests upon the elevated land of Wynaad and Mysore, which standing between 2 and 3,000 feet above the level of the sea form, as it were, a steppe by which the main fall towards the sea is broken. From both of these elevated tracts the Neilgherries are separated by a broad and extensive valley through which the Moyaar river flows after descending from the Hills by a fall at Neddiwuttum* in the north-west angle of the plateau; and the isolation of this mountain territory would be complete, but for a singular sharp and precipitous ridge of granite peaks, which projects out from the base of a remarkable cone called Yellamullay on the western crest of the range, and, taking a west by north course towards the coast, unites itself with the Hills popularly called the "Western Ghauts."

The Koondahs.

In the S. W. angle of the Neilgherries, a singular mass of mountains rises, called the Koondahs, which though in point of fact a portion of the great hilly region, are so completely separated from the "Neilgherries proper" that they merit the distinct appellation they have received. Spurs from this secondary range run to the southward to a considerable extent, almost as far as the Ponany river, and it is in the innumerable valleys bounded by these ridges that the magnificent virgin (forest) land is found, of which I made mention in a former memoir, and which as being eminently well suited for the purposes of coffee and other cultivation, will, I feel

convinced, shortly be the means of rendering this district one of the most valuable and important under the Presidency.

Remarkable scarcity of forest.

The Neilgherries, or rather the plateau formed by their summits, are by no means densely wooded, the forests occurring in distinct and singularly isolated patches, in hollows, on slopes, and sometimes on the very apex of a lofty Hill, becoming luxuriant and extensive only when they approach the crests of the mountains and run along the valleys into the plains below. This absence of forest in a region in which, from its position between the tropics, from the abundance of moisture, and from the great depth and richness of the soil, the utmost luxuriance in this respect would be looked for, is very remarkable; and leads me to conclude that vast tracts of primeval forest land must have been cleared to make room for cultivation at no very distant period.

Dodabetta range.

This belief is strengthened by the fact, that in all parts of the Hills which are exclusively the resort of Todars, such as the elevated land to the north and west of the Pykara river, the whole of the Koondahs, the north-eastern portion of the plateau, called Kodanaad, and other tracts where no cultivation is at present carried on, extensive forests are found. The principal internal range on the Neilgherries is a lofty mass situated in the heart of the district, and running north-west and south-east, the great mountain called "Dodabetta"—the highest on the plateau (being 8,610 feet above the level of the sea,) being the apex, and from it all the minor ridges and spurs which form the undulating land of the Neilgherries may be said to take their rise, with the exception of the "Koondahs" which have a distinct origin, and of a singular elevated tract forming the north-west portion of the Hills, which is distinctly connected with the Koondahs by a narrow ridge under Makoorty peak. From the Dodabetta range to the eastern foot of the Koondahs the land falls continuously, when these mountains abruptly rising obtain an elevation very little below that of Dodabetta itself.

Atmosphere and climate.

Owing to the great elevation at which the inhabited summit of the Neilgherries stands, and the consequent rarefaction of its atmosphere, aided doubtless, in some degree, by the beneficial influence of the luxuriant vegetation which clothes them, the district, although distant only 11 degrees from the Equator, enjoys a climate now famed for its great salubrity, and remarkable evenness in its seasons, with a temperature which falls in the coldest month of the year to the freezing point and seldom in the hottest

reaches 75° in the shade. In stating this I of course refer to the general circumstances of temperature which prevail, for seasons have of course occurred during which from particular atmospheric causes the mercury may have risen occasionally above this estimate.

Coldest months, December and January.

Hottest months, April and May.

The coldest season is during the months of December and January, and the hottest about April and May, though this latter season is not so certain, depending mainly upon the character and time of setting in of the rainy or S. W. monsoon. The hottest period of the day is about 2 o'clock or 2*h.* 40*m.* P. M., and the extreme range of temperature from sunrise to that time averages most commonly 16° throughout the year. The variation is of course the greatest at the time of frost, viz., January and December, when the extreme radiation which goes on during clear nights produces excessive cold towards sunrise, after which the sun's rays, shining with great fierceness through the rarefied atmosphere, speedily restore heat to the earth, and the temperature of the air rises in proportion. Similar causes, reversed in their action, necessarily produce sudden and great cold after sunset, rendering the climate at this season (and indeed at all seasons more or less) one in which the most healthy residents, and especially those who have recently come under its influence, stand in need of caution in their mode of encountering its vicissitudes. For the reasons alluded to, I would venture to remark, that very early and very late parades, according to the practice of the plains, will be found injurious to European troops located on these Hills, and especially to those men whose constitutions have been worn by long residence in a tropical climate.

Ootacamund 7,300 feet above the level of the sea.

The chief station, Ootacamund, from its superior elevation (7,300 feet above the level of the sea) is more exposed to this unfavorable action than the two minor stations, Coonoor and Kotergherry, which are each 6,000 feet above the level of the sea: although these latter are by no means exempt from the same influence, especially during the cold season, as will be seen by the Tables appended to this memoir.

Choice for invalids of three distinct settlements, enjoying each a different climate.

A very great advantage enjoyed by the Neilgherries as a sanitarium exists in the means which are afforded to an invalid to select the peculiar kind of climate which best suits the malady under which he is suffering—by the existence of three settlements, each under Medical charge, situated in different parts of the range, each having a different aspect, and each a climate peculiar to

itself: that of Ootacamund being the coldest—but most damp, Kotergherry the next in the scale, and that of Coonoor the warmest. Thus an invalid whose habits or state of constitution render the change, from the torrid heat of the plains to the penetrating cold of Ootacamund, too great and sudden, has the opportunity and option of acclimatizing himself at either of the minor stations, before exposing himself to the vicissitudes of climate which await him on the highest level.

The valley of Jakatalla well sheltered.

The climate of the Jakatalla valley which I had occasion to recommend to the Most Noble the Marquis of Tweeddale for the site of the projected Barracks for a European Regiment of Infantry, and which has, I believe, been approved of by Government, will I think be found a happy medium between those of the chief and lesser stations. It is well sheltered from the dry cutting northerly winds, which cause so much sickness in Ootacamund during the months of March and April, by the high Dobabetta range which bounds the valley to the northward; and the rains of the S. W. monsoon, though they of course visit this part of the Hills, are by no means so incessant, or accompanied by so much driving mist as is experienced during the same season at Ootacamund. This monsoon (the S. W.) sets in on the Hills during the month of June and is ushered in on the western side, including Ootacamund, by heavy rain and violent gales of wind. Coonoor gets the monsoon at the same time but with less rigour, owing to the clouds which come charged with rain from the westward being attracted to the earth, and induced to discharge their contents by the opposition offered to their flight by the high spurs which run out from the Dodabetta range and interpose between the west and Coonoor.

Enjoys a very even and temperate climate.

Kotergherry sheltered and healthy.

The Kotergherry station is also very favorably protected from the violence of the S. W. monsoon by the Dodabetta range itself, which stands out like a huge wall to screen it. The average fall of rain, the chief part of which occurs on the Hills during this monsoon cannot be called excessive, especially when compared with the visitations in this respect experienced in the neighbouring province of Malabar.

The constant shifting of abode from spot to spot, which the duty of conducting a survey necessarily entails, has prevented me from keeping a register of the actual amount which has fallen in every month of the year, except in 1847, but from such observations as have been made when opportunity offered, I am led to believe that about 60 inches is a fair quantity to assign as the avearge fall of rain through-

out one year at Ootacamund, 50 inches at Kotergherry, and 55 inches at Coonoor. The N. E. monsoon sets in generally in the beginning of October, and is often accompanied by rain more or less all over the Hills, but especially on the east side and at Kotergherry, which, from its position, is exposed directly to its force. The month of December is generally very stormy, and often fatal to a large extent to the lives of the Hill cattle, and to the bullocks and other beasts of burthen employed to bring produce from the plains. The cold easterly wind, blowing through the light rain which is continually falling, and striking upon the wetted skins of the animals, produces a degree of intense cold which soon destroys them, and by these means serious in-roads are yearly made upon the herds of the Hill inhabitants, by whom their loss is not readily replaced. Annexed to this memoir are various Tables extracted from the Meteorological Register kept in the Survey Office at Ootacamund and Kotergherry, which will show all particulars regarding the changes of temperature, the fluctuations and oscillations of the mercury in the barometer, as shown at the hours of maximum and minimum pressure, (9*h.* 50*m.* A. M. and 4 P. M.) temperature of wet bulb, direction of the wind, aspect of the sky, &c.*

Hurricanes very rare on the Neilgherries.

The Neilgherries are occasionally, but by no means frequently, visited by violent storms or hurricanes—so rarely indeed as to excite surprise and speculation as to the cause of this exemption, when its isolated and exposed situation in the Peninsula is considered. Upon this and other points of interest connected with the meteorology of these Hills much light will doubtless be thrown by the observations now regularly conducted in an Observatory recently erected on Dodabetta under the auspices of Mr. Taylor, Astronomer at Madras, in which an instrument for measuring the force of the wind, and other valuable adjuncts to a Meteorological Observatory have been placed.†

During the prevalence of the S. W. monsoon the atmosphere is almost continuously charged, more or less, with dense mist, enveloping chiefly the mountain tops, but descending into the inhabited valleys as the warmth of the day passes, and spreading in heavy and impalpable fog in all directions. When not under this influence the atmosphere overhanging these mountains is brilliantly clear and cloudless—and especially so on the eastern side of the range.

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* These tables have been omitted in this Edition as of no use to the general reader.—ED.

† This Observatory was abolished by Sir Charles Trevelyan, when Governor of Madras.—ED.

Table showing the average temperature, &c., throughout the year, on the Neilgherry Hills.

	Month.	Mean Temperature.			* Mean range of the Thermometer.		Remarks.
		At Sunrise.	At 2*h.* 40*m.* P. M.	At Sunset.	Sunrise to Sunset.	Rain in Inches.	
		°	°	°	°	″	
At OOTACAMUND, 7,300 feet above the level of the Sea.	January....	42	63	58	21	1	Cold North-easterly winds prevail.
	February..	44	65	60	21	1	Do. do. do.
	March......	49	68	63	19	2	Do. and dry do. do.
	April.......	54	68	63	14	5	And dry do. do.
	May........	54	68	63	14	6	Commences to vary to S. W.
	June........	53	64	59	10	8	S. W. Monsoon sets in: strong wind.
	July.........	52	62	57	10	7	S. W. and W. winds blow.
	August....	52	62	57	10	6	Wind begins to vary to W. & N. W.
	September	52	62	56	10	7	Wind N. W. and towards end N. E.
	October.. .	51	62	56	10	9	N. E. and Easterly winds prevail.
	November	49	61	55	12	5	N. E. winds blow, fresh, clear.
	December.	45	60	55	15	3	Do. do. often violently.
					Total...	60	Inches of Rain.
		°	°	°	°	″	
At KOTERGHERRY, 6,100 feet above the level of the Sea.	January...	51·5	66	60	15	2	N. E. and N. W. winds prevail.
	February...	52·5	67	63	15	3	Do. do. rain very uncertain.
	March......	54	67	63	13	6	Winds variable N. E. to S. E.
	April.......	56	68	64	12	10	Do. do. N. E. to E. & S. E. rain uncertain.
	May.........	56·5	68	64	12	2	Do. from N. E. to N. W. & West.
	June........	58	69	65	11	2	Do. from N. W. to S.W. rain variable.
	July.........	60	70	65	10	4	S. W. monsoon winds, but light & var.
	August.....	60	71	65	11	2	N. W. winds prevail in this month.
	September	59	69	64	10	2	Do. do. veering to W.
	October....	56	68	63·5	12	10	Do. do. light and variable.
	November.	54	67	61	13	2	N. E. winds veering to N. W.
	December.	52	66	60	14	5	Winds generally from the N. gusty.
					Total...	50	Inches of Rain.

Productions.

The resources of this highly favored region are as diversified and valuable, as they appear easy of attainment, and comparatively inexhaustible. With a climate and soil such as have been described, great productive powers in the vegetable kingdom, and a proportionately high development of them, would naturally be looked for. That the latter is wanting to a lamentable degree is to be accounted for, by the wretched system of husbandry,

* From want a of maximum and minimum Thermometer, I have not been able to record the *extreme* range of the Thermometer during the twenty-four hours.—Ed.

pursued by the agricultural tribes who have settled upon the Neilgherries, as also possibly, in some degree, by the absence of that encouragement which would be produced by the institution of some channel, through which the products of their industry might reach a ready, certain, and ever demanding market.

Wheat.

I commence the long list of productions, which the Neilgherries are capable of supplying, with wheat, as one of the most important, and as one, moreover, which the Honorable Court of Directors appear at the present time to be much interested in collecting data regarding, from all districts in India capable of producing it.

In making up the returns of the gross quantities of grains of all sorts produced in the district, I have taken the totals of each from the Seebundy Accounts of 1847 or Fusly 1257, as rendered orally in the Cutcherry. From these it appears that in 1847, 70 "vullums" of land were cultivated for wheat, each vullum producing on the average 400 "kolagums." This "kolagum" which is a measure peculiar to the Hill tribes, contains 226 cubic inches, and hence the quantity produced was

3,000 bushels,
or 375 quarters,

the weight of a kolagum of average wheat (husked) is, I find, 7lbs., hence the *bushel* of Neilgherry wheat weighs......$68\frac{3}{5}$ lbs. avoirdupois,
or a quarter...........$548\frac{4}{5}$,, ,,

A "vullum" of land is equivalent to 2 cawnies, 21 grounds, and 864 square feet. Hence the total quantity of land cultivated for wheat at the present time is, 202 cawnies, or 267 acres: and the produce is $14\frac{7}{10}$ bushels per cawny, or $11\frac{1}{8}$ bushels per acre. The return in moderately good land cultivated for wheat is 40 to 1; or 40 bushels reaped for 1 bushel sown.

That the quantity of wheat at present produced on the Neilgherries could be very greatly increased, there cannot be a doubt, provided a better system of husbandry were introduced, and better seed imported from Europe and distributed amongst the agricultural tribes; and as recent distressing circumstances in Great Britain appear to have directed the attention of the Home Government to colonies, which are thought capable of producing this grain in sufficient quantity to assist in relieving the mother-country from her present hazardous position of dependence upon foreign States for her supply, I shall venture to offer a few further remarks, before closing my notice of this important item in the chapter of natural productions.

Neilgherries and Koondahs well suited for the growth of wheat.

The whole of this Hill district, including the Koondah mountains, is eminently well suited in point both of soil and climate, for the production of wheat, but as the last mentioned tract is not yet surveyed, it must at present be lost sight of, although I feel confident it will be found on examination to furnish a very important addition to the gross amount of land estimated as suitable for the cultivation treated of, and which at present lies totally waste and useless.

The quantity of land thus lost to the State I calculate to amount to no less than 200,000 acres, as is shown by the following statement:—

200,000 acres of land lying waste on the Neilgherries exclusive of the Koondahs.

		(Square Acres.)
Total content of the geographical surface of the Neilgherries..		268,494
Of this quantity there are now under cultivation including lands lying fallow................	Sq. Acres 31,434	
Pasturage to be reserved for the cattle of the Todars at the exaggerated rate of 200 acres per 100 head (less than 40 per 100 being allowed by the revenue authorities in the calculation for assessment), for an average of 2,000 head of buffaloes will be.............	,, 4,000	
Pasturage to be reserved for the cattle of the Burghers, consisting of buffaloes and bullocks, averaging 8,000 head at 100 acres per 100 head..	,, 8,000	
Land occupied by the Cantonment of Ootacamund, future barracks, roads, &c............	,, 6,000	
Village sites, sacred groves, &c....................	,, 2,060	
Tracts of rocky ground, morasses, and other land not immediately fit for cultivation (although these might well be considered as compensated by the gain of surface introduced through the undulations of the land).	,, 17,000	
	Deduct...	68,494
	and there is a remainder of...	200,000

acres entirely unoccupied and waste, being either covered with forest, or lying under grass not required for pasturage.

Under a better system of cultivation also it would not be necessary to suffer so large a proportion of the Burgher's cultivated land to lie fallow at one time, as is at present in that condition, amounting, in round numbers, to 17,000 acres out of a total of 31,500 acres of cleared and arable land.

Of the forest land every acre is of course peculiarly well-suited for wheat, and being virgin soil it should produce, under proper management, large crops of the very finest grain.

The same may be said of swamps, when drained, but as potatoes are found to thrive well in the soil which their drainage produces, such land in a farm would naturally be reserved for stock produce, and an allowance has therefore been made for this in the estimate.

Making, however, exaggerated deductions on all accounts, there yet remain no less than 200,000 acres of unallotted and unemployed land, of which at the very lowest estimate one-half, or 100,000 acres, may be taken as fit for the production of wheat, under a proper system of husbandry, allowing a sufficiency of well-prepared manure, an occasional dressing of lime, and exercising proper judgment in allowing it to lie fallow or changing crops, according to its condition and composition of soil.

It has been already stated that the Burghers obtain from their wheat lands a quantity of grain equivalent to 11⅛ bushels per acre, but as the depth to which they plough their fields never exceeds 7 inches, and for the most part is barely 6, and as they give them only the most meagre allowance of sun-dried and exhausted manure, never exceeding (as far as I have been able to ascertain by counting the baskets brought and measuring spaces of land dressed with it) half a ton per acre, and this not ploughed well into the ground, but merely scraped into the surface furrows, and as they never supply the land with what, from the composition of the soil, it so much needs, viz., lime, it may be safely assumed that under a proper system of tillage this amount of produce could be at least trebled, or, at a very low estimate, four quarters of wheat could be obtained from one acre.

I may therefore safely affirm that this district is capable of furnishing, for export to Europe, from 4 to 500,000 quarters of wheat of a quality far superior to that which is at present raised, and at a cost sufficiently low (the distance to the nearest shipping port being only 110 miles, 36 miles of which are performed by water) to admit of large profits being realized by the growers, even when the price in England is so low as 65 shillings a quarter.

The following is an estimate of the cost *to the Burghers* of the cultivation of wheat per English acre, ascertained with as much exactness as circumstances and the deceitful character of the people, who seldom adhere to the truth in any of their statements, have admitted of:

Estimate.

Estimate of the expense of cultivation of wheat to the Burghers.

Ploughing: 5 ploughs with 2 bullocks and 1 driver, in 3 days plough 1 vullum of land (= $3\frac{4}{5}$ acres). The keep of the bullocks costs nothing, as they get nothing but grazing: the expense is therefore the hire of 15 men per vullum or 4 per acre at 2 Annas......	Rs.	0	8	0
Collecting weeds and grass and burning them, 2 boys at 1 Anna......	„	0	2	0
Bringing and spreading 5 baskets of manure, 1 man at 2 Annas......	„	0	2	0
Sowing seed and turning the soil 5 ploughs to one vullum or 6 men, which is $1\frac{1}{2}$ men per acre at 2 Annas......	„	0	3	0
Seed wheat $2\frac{2}{3}$ kolagums at 2 Annas and 8 Pice per kolagum......	„	0	7	0
Repairing fences and clearing channels to carry off rain, 1 man......	„	0	2	0
Reaping and thrashing: the expense of the first is covered by the straw, and the last costs nothing, as it is performed by the bullocks which are driven round and round a post to tread out the grain.				
Assessment, at the highest rate......	„	0	14	9
Cost per acre...	Rs.	3	0	9

Return.

105 kolagums of grain which are sold at 2 Annas 8 Pice......	Rs.	17	8	0
Deduct cost of cultivation......	„	3	0	0
Profit to the cultivator *per acre*...	Rs.	14	8	0

It is true that out of this we must take the "goodoo" or tribute which they give to the Todars, and which may be considered in the light of rent for the land; but this is not much; they profess to give $\frac{1}{6}$th, but I have reason to believe, both from the statements of the Todars and of the Burghers themselves, that what they actually make over as "goodoo" is not above one-half of this proportion, if even so much, especially in the item of wheat which is so profitable to them.

It may not be considered out of place to introduce here a statement of the expense of keeping horses and cattle, and of carrying on farming operations generally on the Neilgherries.

Plough horses.

Horses cast from the *Artillery and Cavalry would, when castrated, answer very well for the plough : they may be purchased at from 100 to 200 Rupees.

2 horses would require 1 horsekeeper at Rs. 7 per mensem...		Rs.	7
and (until the farm yielded hay)			
2 grass-cutters............................	,, 4 ,,	,,	8
Food : gram 2 seers per day for each horse	4 × 30=120 seers...	,,	7
barley 2 ,, ,, ,,	4 × 30=120 ,,	,,	4
Shoeing, 1 Rupee each per mensem....................................		,,	2
Halters, cumblies, salt, medicines, &c., 1 Rupee per mensem.......		,,	2
	Total per mensem...	Rs.	30

which is £18 per annum per horse.

Spade husbandry.†

A cooly can dig in one working day in new meadow ground about 25 to 30 square yards, one foot deep, his pay being 2 Annas.

Children employed to weed, receive 1 Anna per day.

Native farm servants, gardeners, &c., receive 5 Rupees a month.

Herdsmen for cows, goats, &c. ,, 4 ,, ,,

Keepers for bullocks, employed to bring supplies or carry produce to the coast or to market, receive 5 Rupees a month, at the rate of one keeper to every five head of cattle.

A good carpenter receives ½ Rupee a day.

A good bricklayer ,, ½ ,, ,,

Lime.‡

Lime, in an unslaked caustic state, can be delivered on a farm on an average of distance from the high roads at the rate of 12 Annas per bullock load of about 2 bushels.

Bones.

Bones could be obtained from the low country for the cost of collecting in the villages and conveying up the passes.

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* The Horses now employed in the Artillery and Cavalry consist entirely of Geldings. No entire Horses are admitted.—Ed.

† The market value of cooly and other labor has risen considerably since this memoir was published. A cooly now receives 6 Annas per day. Children 2 Annas. Farm servants, gardeners, &c., 8 Rupees per mensem. Carpenter 1¼ Rupees. Bricklayer 1 Rupee a day.—Ed.

‡ A bullock-load of lime costs 1½ Rupees at the present time.—Ed.

Barley.

Next in importance in the class of productions is barley, the quantity of which, raised during the past year far surpasses that of wheat. In 1847 it amounted to 1,419 vullums, each vullum producing on an average 400 kolagums, making a total of

60,383 bushels,

or 7,548 quarters,

taking the imperial bushel as before at 2,218 cubic inches, and the kolagum, by my measurement, at 226 cubic inches. The barley grown on the Neilgherries is divided into two kinds by the Burghers, the first and best being "Sheemey ganjee" or English barley, so called from its being the degenerate produce of English seed given to the head Burghers many years ago, by, I believe, Mr. Sullivan, when Collector of this district, and the other "Malley ganjee" or Hill barley, which they describe as indigenous to the Hills. The quality of both sorts is very poor, nor is this much to be wondered at when their defective mode of cultivation is witnessed, and the great deterioration of the grain, which naturally results from the contant employment of the same seed in the same land over and over again, without any change or any attempt at the introduction of imported or mixed seed. The weight of a kolagum of ordinary barley is 5½ lbs. which gives 54 lbs. for the weight of a *bushel*, and 432 lbs. for that of a *quarter*. The return in moderately good ground is 50 per cent. under that of wheat, being only 20 measures of crop for 1 measure of seed.

The yield per cawny is	14·7	bushels,
or per acre	11·12	do.

and the total amount of barley cultivation is

in cawnies	4,109
or in acres	5,433

Beer.

Before quitting the subject of barley I cannot refrain from adverting to one immediately connected with it, and which I deem of so much importance, that although I am not sanguine in my hopes that Government may be induced by any representation made by me to institute experimental proceedings, with a view to test the feasibility of the scheme, I still consider it my duty to place on record in this memoir the results of experiments which I have had favorable opportunities of making, under the impression that a time must sooner or later come when this, amongst many other valuable resources of these Hills, will be fully developed and taken advantage of.

I allude to the subject of fermented malt liquors which can be made on the Neilgherries with the greatest facility in all the details of the process, and at a cost so trifling as to enable the Commissariat to supply the European troops at the three stations more immediately in the vicinity of the Hills, viz., Bangalore, Trichinopoly and Cannanore, with both Ale and Porter, at a rate, calculated on an extreme estimate, not exceeding 10 Annas per imperial gallon delivered to the men from the cask in the Canteen, or $2\frac{1}{2}$ Annas per quart, equivalent to $3\frac{1}{4}d$ per pot.

Can be made and sold at Bangalore at $2\frac{1}{2}$ Annas per quart.

Independent of the importance, both in a moral and economic point of view, of supplying to the troops a liquor which, from its goodness and cheapness, will induce the majority to prefer it to ardent spirits, the subject becomes still more entitled to consideration from the advantages which must result from its successful issue, when the projected measure for the permanent location of a Regiment of European troops on the Neilgherries shall be carried out: for as the chief item in the estimate of cost is the carriage from the brewery to the station in the plains, beer will be supplied to those resident on the spot at a greatly diminished rate.

A very favorable opportunity will also be offered for bringing the project into practical operation when a regiment is stationed on the Hills, because amongst the men many brewers and maltsters by trade will no doubt be found, and by the practical knowledge of these men many difficulties in the details of the process which experimentalists like myself encounter, will be speedily overcome. An inspection of the Tables of temperature given in the Appendix to this memoir will at once show that the first part of the process of the manufacture of beer,* viz., the conversion of barley into malt, can be carried on here as well as in any part of Great Britain; for although the range of the mercury may appear so great as to endanger the success of the process by causing the germination to proceed too rapidly, this evil can be readily averted by placing the malting floors in buildings with thick stone or even mud walls, covered with thatched roofs elevated considerably so as to deflect the rays of the sun and preserve an even and low temperature throughout the day. The temperature found most suitable to malting in England is about 60° to 62°, and this degree of heat could be maintained without excess in malting sheds on these Hills throughout at least nine months in the year.

Malt.

Temperature well suited for malting and fermenting. Average temperature of the Neilgherries 62°.

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* Good beer is now manufactured on the Neilgherries—Ed.

I must observe however that the barley grown here is so poor in quality, so light in the grain, and containing in a given measure so large a proportion of husk in excess of what the same quantity of English barley would produce, that the malt made from it yields in the mash but a very disproportionate quantity of saccharine matter, rendering it necessary to employ raw sugar as an adjunct to produce a wort of sufficient strength. But this, which might elsewhere be considered an objection on the score of expense, is here of easy remedy, since in the immediate vicinity of the Neilgherries, viz., in Mysore, excellent sugar is manufactured in great abundance, and at a rate so low that at this present time, February 1848, it is being sold in the bazaar of Ootacamund at 3 Rupees 12 Annas per maund of 25 lbs. weight, being equivalent to 33*s.* per cwt. Formerly, a prejudice existed against the employment of sugar in the manufacture of beer, but as it is now seen that the permission to introduce it into breweries in England which has been recently granted by the Legislature is regarded by the public as a signal boon, it must be self-evident that since this important article is, comparatively speaking, indigenous to the spot, cheap, excellent and abundant, and as the climate is in all respects eminently well adapted for carrying on the process of vinous fermentation as well as that of malting, beer and porter can, under proper management, be produced on the Neilgherries in every respect as wholesome and good as that now imported from England, and at a cost less by one-half, even including cartage to the station where it is to be consumed.

Quality of barley very inferior.

Sugar cheap and good.

I beg leave to observe that in advancing these remarks, I do not base my expectations and assurances on mere surmise or theoretical views of the subject, but upon the results of actual experience, as I have now brewed several casks of beer without a single failure in the principal parts of the process, viz., malting, fermentation, and fining, while its quality has been much approved of by many persons who have tasted it, amongst whom I may enumerate, Mr. Drury, the Senior Member of the Board of Revenue; Captain Bell, Secretary to the Board; Major General Kennett, Lord Gifford, General Gibson, with many others. In consequence of the success which attended my early experiments, in conducting which I employed malt prepared by myself from Hill barley, with hops and dried yeast imported from England, and my confidence in the success of the scheme if entered into by Government, I addressed a letter to the Commissary General upon the

Good beer has been brewed on the Hills by the writer of this memoir.

subject, communicating such details as seemed of interest, and offering to carry on further trials on a small scale, at my own expense, if a copper could be supplied to me temporarily on Indent from the Commissariat Stores. I also sent samples of some beer which I had brewed, but which had an unpleasant taste communicated to it owing to my having employed "gour" or "raw jaggery" in the brewing in place of refined sugar, without taking the precaution of cleansing it from the dirt and gummy matter with which this article is generally contaminated. I was not so fortunate as to receive a reply to this letter (beyond a message through a third party) and this absence of encouragement prevented me from following the matter further, but I may add that for my own use I continued the manufacture with a success, which convinces me that it is only necessary to extend the scale upon which my operations are carried, and to secure practical knowledge in the more important details of the process, to ensure the most complete realization of my anticipations regarding the vast benefits to be derived by this item in the list of productive resources of the Neilgherries.

Samples sent to the Commissary General.

No answer received.

The following is an estimate of the cost of ale brewed here, from *actual* experiment. In England to make a hogshead (66 gallons) of strong ale intended for export to the tropics, the brewers use

6 bushels of malt,

and 6 lbs. of hops:

now it has been ascertained since the introduction of sugar into British breweries that

180 lbs. of moist sugar are equivalent to

1 quarter, or 8 bushels of malt.

If therefore both malt and sugar are employed in equal proportions, the hogshead will require 3 bushels of malt and 72 lbs. of sugar. Considering the Hill malt to be 100 per cent. inferior to English malt, I made use of

Estimate of the expense of manufacturing malt liquors.

6 bushels of malt and 72 lbs. of sugar.

ESTIMATE.

6 bushels of barley, or 60 kolagums at 12 kolagums per Rupee	Rs.	5	0	0
72 lbs. (3 maunds) of sugar, at 4 Rupees per maund	,,	12	0	0
7 lbs. of hops, imported from England	,,	7	0	0
Carried forward...		24	0	0

Brought forward...		24	0	0
Fuel for kiln drying malt, and boiling....................	Rs.	1	4	0
Proportion of labor in steeping barley, turning malt, drawing water, brewing, &c.,........................	,,	2	0	0
Sundries	,,	1	4	0
Cartage to Bangalore (1 cask a load)	,,	9	0	0
Total Rupees...		37	8	0

A hogshead should run 60 gallons of clear beer, hence Rs. $\frac{37-8}{60} = 10$ Annas per imperial gallon for the gross cost.

This estimate might be reduced in many of its items if a Government brewery were established here upon an extended scale. In the first place all the yeast produced would meet with a ready sale in Ootacamund, for the bakeries which are now dependent on the low country for a supply of toddy, with which bread is fermented all over India, and which, having to travel a considerable distance before it reaches the settlement, is often found to have passed into the stage of acetous fermentation, rendering it either unfit to make bread with, or causing the bread to have an unwholesome and bad taste. A large quantity of yeast would also be daily required for the bakehouses of the European Regiment located here. The estimate for hops, at 1 Rupee per pound delivered here, is far too high, as, if sent out by the Home Government in quantity, they could not possibly stand in at the brewery at so high a rate; and the cost of labor would be diminished if a large quantity of beer were brewed daily.

Yeast much wanted on the Hills for making bread.

I would further beg leave to dwell upon the importance to this district of the establishment of such a manufacture upon a large scale in a Revenue point of view, which from the great demand it would create for barley, would soon lead to the reclamation of the greater part of the waste but rich lands, which are now left untouched through want of stimulus to the industry of the Hill tribes, and also, as it appears to me, in some measure to the want of hands to till them—a deficiency which would however be speedily remedied by immigration from Mysore and the plains around. In fact were it not for the assumption of absolute right over all the lands, waste, and cultivated, which are situated on the plateau of these Hills, by the Todars, Burghers, and Kothers, there is no doubt that many low country people, who came up here seeking employment as Coolies, would form settlements and permanently locate themselves wherever

The Revenue improved by the increased demand for barley for malting.

they could obtain possession of land to bring under cultivation. Should Government at any future time see fit to create an establishment on these Hills for the manufacture of beer, it would be very advisable, and indeed in the first instance almost indispensable, to connect with it a Government farm, to serve as a model for the introduction of improvements in husbandry, both in regard to ploughing and dressing the land, and in the preparation of good manure, a department of the farmer's profession of which the Hill agriculturists appear to have no knowledge whatever. Good seed must be sent from England and distributed amongst the Burghers, upon whose exertions the stimulus of a premium, in the shape of a higher price for barley of a superior description, would doubtless soon produce a beneficial effect, while imitation of the system pursued by the employés of Government in the management of the farm lands would also, it is supposed, lead to the adoption of more civilized notions and practice of agriculture than are now to be found prevailing in any part of this rich, but ill-appreciated, Hill tract. In this climate Europeans might with perfect safety as regards their health, go through all the out-of-doors labor which falls to the lot of farming men in England. They do so in New Zealand and Port Adelaide where the climate is unquestionably less temperate than here, and as on the Neilgherries the actual exertion of European bodily strength would only be required at particular seasons of the farming year, such as in the direction of the plough and the use of the scythe, while superintendence and instruction of the Native laborers would alone be required, on the part of a European, in conducting the minor details of a farm, I cannot but think that in many respects a far finer field is offered on these Hills to the emigrant farmer from home, than is met with by the many who flock to the Australian settlements.

Advisability of establishing a Government farm, for the purpose of promoting and improving the cultivation of wheat and barley.

Europeans can labor in the day-time on the Neilgherries.

Here cooly labor is very cheap, 2 Annas or $2\frac{3}{4}d.$ a day being the regular rate of pay for a working man who can perform any duty pertaining to spade husbandry, and undertake all the duties of a farm, which, in England, fall to the lot of the common laborer, such as hedging and ditching, trenching, hoeing, reaping, stacking, thatching, &c., &c. A shilling a day, or $\frac{1}{2}$ a Rupee, is the pay of a bricklayer or carpenter; men to look after 2 horses receive 14 shillings, or 7 Rupees a month, cowherds 4 or 5 shillings, and all other labor in proportion.* These

Labor cheap—2 Annas per day.

* *Vide* second foot note, page 16.

advantages, coupled with those presented by a ready and ever demanding market for such articles of produce as wheat, barley, (oats if raised) clover, hay (of which article an immense quantity would be consumed in Ootacamund if it was procurable), turnips, potatoes, (Ceylon offering a very favorable market for this vegetable), butter, eggs and stock of all descriptions, both for butcher's meat and for salting for ship use, would surely, it is to be supposed, tempt many indigent farmers to this Hilly region, whose necessities impel them to emigrate from the mother country, but whose steps are stayed by the warnings uttered by the many hundreds of their unfortunate fellow-countrymen, who have hurried heedlessly out to the Australian colonies, only to meet with disappointment and ruin.

Site recommended for a Government Farm.

Should circumstances ever induce Government to establish a Farm on these Hills for the purpose of encouraging the growth and extending the cultivation of wheat and barley, I should recommend two sites for its location; one on the elevated tract of land to the westward of the Pykara river, commencing at the north-west angle of the plateau near Neddiwuttum, and extending southward to "Makoorty peak," the whole of which may be said to be uninhabited, there being only 7 small Todar munds situated in it, and these not all occupied, while the soil is for the most part excellent, pasturage abundant, and the land covered, in many parts, with fine forest, rendering the tract (which contains about 12,000 acres) admirably adapted for the purpose which I venture to suggest.

Kodenaad.

The other site is a fine tract of land forming a sort of promontory in the north-east angle of the plateau of the Hills called "Kodenaad" which is equally uninhabited, having only three occupied Todar munds within its limits; the soil good and forest abundant, many fine wooded vallies extending through it, and offering a most eligible locality for a farm. The tract contains about 7,000 acres.

Other dry grains produced.

The other grain productions of the Neilgherries are ragghee, samee, korallie, tenney, buttacudaley (a kind of peas), shanungee (a kind of gram), garlic, onions, kudagoo (mustard seed), vendium, opium and potatoes. Almost all the grains enumerated are raised solely for home consumption—and, excepting karollie, for which about 1,200 vellums of land are cultivated yearly, the quantity of each which is produced is insignificant.

I may therefore refer for further particulars regarding them to the accompanying "Statement" in which is set forth the total quantities of land cultivated and of grains produced, the ratio of return of crop to the seed sown, the selling prices of each and the rates of assessment. The information upon which the table has been formed is derived from the Revenue Accounts for 1847, and although the average of produce and return is rather a high than a low one, it may, I think, generally speaking, be pronounced as correct as it is possible to make a return of its description, in a district where the site of cultivation is so perpetually shifting as is the case on the Neilgherry Hills. From the data given in the statement it will be apparent that, where the cost of labor is so low as it is here, considerable profits must be realized by the cultivators.

In the items of potatoes, wheat, poppy and barley, we find that after deducting the assessment and the cost of seed, there remains respectively as profit, and for repayment of the expense of cultivation:

Profit per acre to the growers on Potatoes, Wheat, Poppy, Barley.

On one acre of		Potato land......	Rs.	54	3	3
Do.	do.	Wheat ,, ...	,,	16	0	0
Do.	do.	Poppy ,, ...	,,	8	10	0
Do.	do.	Barley ,, ...	,,	5	13	7

These are estimated upon the prices obtainable on the Hills for produce, but if potatoes and wheat were exported, a much larger profit would be realized. Hence another promising opening to emigrants in the form of an establishment for breeding and salting pork for ship use; as, since potatoes and barley can be produced at so low a rate, and a herd of cows kept for nothing but 5 shillings a month, for a herdsman, with a percentage to cover interest on outlay and casualties, it cannot be doubted that the most cursed in this climate would both prove of excellent quality, and return, by its sale at Bombay or other shipping ports, a considerable profit to the breeder and salter. Under any circumstances larger profits must be realized than those returned from the same market to the exporter from Europe, who has to breed his stock under all the disadvantages of dear food and labour, and cost of freight to its destined port of sale.

Salting pork, &c.

Amongst the productions of the Neilgherries may be enumerated hides, both of the buffalo and ox, the former of which are especially prized in the low country for making soles of shoes, traces and other articles requiring a strong and durable leather. The hide of the bull buffalo is considered

Hides.

STATEMENT of the AGRICULTURAL PRODUCTS of the NEILGHERRIES in 1847—*Fusly* 1256.

Name of Production.	Quantity of land cultivated. In Vullums.	Equivalent. In Cawnies.	Equivalent. In Acres.	Produce. In Kolagums per Vullum.	Produce. Equivalent in bushels per acre.	Ratio of return of crop from seed.	Gross amount produced. In Kolagums.	Equivalent. In Bushels.	Equivalent. In Quarters.	Average selling price. Per Kolagum of 2 seers. R.	A.	P.	Equivalent. Per Bushel. R.	A.	P.	Equivalent. Per Quarter. R.	A.	P.
Wheat.......	70	202	267	400	11·12	40 to 1	28,000	2,978	372	0	2	8	1	6	0	12	8	0
Barley........	1419	4,109	5,433	400	11·12	20 ,, 1	567,600	60,383	7,548	0	1	1	0	10	2	5	1	4
Raggee.......	105	303	400	400	11·12	80 ,, 1	42,800	4,468	558	not brought to market.								
Samee........	364	1,052	1,391	300	8·4	60 ,, 1	109,200	11,617	1,452	0	0	0	0	0	0	0	0	0
Koralley......	1289	3,724	4,924	200	5·6	10 ,, 1	257,800	27,425	3,425	0	0	0	0	0	0	0	0	0
Tenney.......	102	294	385	300	8·4	30 ,, 1	30,600	3,255	407	0	0	0	0	0	0	0	0	0
Buttacudaley.	83	240	317	200	5·5	40 ,, 1	16,600	1,766	221	0	2	8	1	9	0	12	8	0
Shanungee...	56	159	210	300	8·4	30 ,, 1	16,500	1,755	220	0	2	8	1	9	0	12	8	0
Garlic........	132	381	504	600	16·8	48 ,, 1	79,200	8,425	1,053	0	0	10	0	8	0	4	0	0
Onions.......	31	90	141	700	20·	56 ,, 1	21,700	2,308	288	0	1	1	0	10	2	5	1	4
MustardSeed.	122	352	491	300	8·4	150 ,, 1	36,600	3,893	487	0	0	10	0	8	0	4	0	0
Vendium.....	67	194	256	200	5·6	100 ,, 1	13,400	1,425	178	0	1	0	0	9	5	4	11	4
Poppy Seed }	93	269	353	100	2·8	100 ,, 1	9,300	990	124	0	4	0	2	5	7	0	0	0
and Opium }				2$\frac{3}{5}$lbs. per Vullum.		,,	242 lbs. Avoirdupois.			3	0	0	per Seer=Rs. 5 per lb.					
Potatoes.....	49	141	186	600 Mds. ,,		15 ,, 1	29,400 Mds.=cwt. 6562			0	6	0	perMaund=R1 ,, 11 per lb.					
	3981	11,510	15,220	Acres of land under cultivation.														

Name of Production.	Rate of Assessment. For good land. Per Vullum. R.	A.	P.	Equivalent. Per Cawny. R.	A.	P.	Equivalent. Per Acre. R.	A.	P.	For inferior land. Per Vullum. R.	A.	P.	Equivalent. Per Cawny. R.	A.	P.	Equivalent. Per. Acre. R.	A.	P.
Wheat.......	3	8	5	1	3	6	0	14	9	2	5	7	0	12	9	0	9	10
Barley........	3	8	5	1	3	6	0	14	9	2	5	7	0	2	9	0	9	10
Raggee.......	2	0	11	0	11	5	0	8	8	0	14	1	0	4	10	0	3	8
Samee........	2	0	11	0	11	5	0	8	8	0	14	1	0	4	10	0	3	8
Koralley......	2	0	11	0	11	5	0	8	8	0	14	1	0	4	10	0	3	8
Tenney.......	2	0	11	0	11	5	0	8	8	0	14	1	0	4	10	0	3	8
Buttacudaley.	2	0	11	0	11	5	0	8	8	0	14	1	0	4	10	0	3	8
Shanungee...	2	0	11	0	11	5	0	8	8	0	14	1	0	4	10	0	3	8
Garlic........	3	8	5	1	3	6	0	8	8	2	14	7	0	12	9	0	9	10
Onions.......	3	8	5	1	3	6	0	14	9	2	5	7	0	12	9	0	9	10
MustardSeed.	3	8	5	1	3	6	0	14	9	2	5	7	0	12	9	9	9	10
Vendium.....	3	8	5	1	3	6	0	14	9	2	5	7	0	12	9	9	9	10
Poppy Seed }	3	8	5	1	3	6	3	14	9	2	5	7	0	12	9	9	9	10
and Opium }	included with the seed in the Assessment.																	
Potatoes.....	7	0	0	2	6	9	1	13	4	5	0	0	1	11	8	1	5	0

far superior in value to that of the cow. I have not been able to ascertain what quality of hides are annually collected and cured here for export, but it cannot at present be very considerable, as it will be seen by the returns in the Appendix that the total number of buffaloes and bullocks herded on these Hills is, comparatively speaking, by no means large.

Opium.

Opium is produced on the Neilgherries to a small extent, and it appears that the Burghers who cultivate the poppy pay more attention to the collection of the seed (which fetches a very remunerative price as an article of food in the bazaars) than to the extraction of the drug from the capsules of the plant. The total quantity produced last year was under 200 lbs. avoidupois, but I have no doubt it could be increased very greatly if other cultivators could be introduced on the Hills; as the Burghers, slaves to habit, prejudice, and the love of ease, oppose themselves to any change or improvement which involves additional trouble or personal labor.

Poppy fields require some care both in preparing and well manuring the ground before sowing, and in hoeing and irrigating it whilst the plants are young. Hence this kind of cultivation is only carried on in the immediate vicinity of their villages, where the fields can be attended to by the women and children, and where manure, such as it is, is more readily, and with less trouble, collected.

Neilgherry opium of very fine quality.

The opium extracted by the Burghers from their poppies appears to be of exceedingly fine quality, and meets with a ready sale in the bazaars of Ootacumand amongst the Mysore and Malabar coolies and others in better circumstances, by whom it is eaten in its raw state, but never, as far as I can learn, smoked.

The Neilgherries misappropriated and neglected.

Having thus reviewed the more important articles of agricultural produce, I am induced, before concluding the subject, to hazard the remark, that I cannot but consider that the lands comprising the plateau of these Hills, so valuable from their capacity for producing grains which cannot be cultivated in the low country which surrounds them, and which are so much needed for the public good, are under the exclusive system which at present prevails, both misappropriated in their partial cultivation, and wastefully neglected, inasmuch as that there is not drawn from them that full amount of benefit to the community, which nature has so eminently qualified them to contribute. On looking at the "Statement of productive resources" it will be seen that out of 11,500 cawnies at present under actual cultivation, only 4,300 cawnies are

devoted to the production of wheat and barley, while on all the rest of the land grains are reared, which, with only one or two exceptions, are grown just as well, and far cheaper, in the plains below, and would be brought up and bartered for wheat to any extent, could this much wanted grain be procured on the Hills in greater quantity. It will scarcely be credited that this district so peculiarly well adapted for the cultivation of wheat actually does not produce enough to supply the bakeries of the principal settlement, for the use of which large quantities of a very inferior description of grain are imported from Mysore ; while the minor settlements of Coonoor and Kotergherry are supplied with bread from Coimbatore.

Hill wheat certainly finds its way to the low country, by being bartered by the Burghers with the traders for cloths and other articles, but the quantity thus exported is insignificant, and bears no comparison with that imported from Mysore.

Silk.

There remain yet a few articles of plantation produce to be noticed, the oldest of which, in the agricultural history of the Neilgherries, is silk. There are several plantations of mulberry trees in various parts of the Hills, for the breeding of the silk-worm, with establishments for preparing and winding the cocoons, the silk produced by which has, I understand, been pronounced in London to be of a quality very far superior to any produced in the plains, either in Bengal or other parts of India ; and what has been sent to England appears to have realized very high prices. The quantity produced however has hitherto been very insignificant, and I confess, as far as I am able to judge, the scheme appears a complete failure. The mulberry trees do not shoot out fresh leaves with that redundant luxuriance which distinguishes all other descriptions of vegetation on these Hills ; the weeding, watering, and pruning which they require involves much expense ; the worms require the most delicate treatment, both in regard to food and temperature, any mismanagement of which entails destruction on myriads, and the quantity of cocoons produced is not in a sufficiently large proportion to allow the superior quality of the silk reeled from them to secure a profit to the planter.

Already one extensive plantation, and worm and silk house, at Coonoor, has been given up ; and I should think it will not be found that this description of cultivation will be extended by future settlers.

Coffee.

Numerous plantations of coffee trees are scattered about the Hills, principally situated on the slopes descending to the plains, where the elevation suitable for

the growth of this shrub can be obtained. Until within the last two or three years, coffee plantations were only found on the eastern side of the Hills, but representations of the excellent quality of the berry, and of the advantages attending its cultivation on the Neilgherries, having been made in Ceylon, the attention of the skilful planters of that island was attracted in this direction, and the result has been the opening of several plantations, where I ventured to predict, in a former memoir, that this description of cultivation would sooner or later be introduced, viz., on the western slopes of the Hills, where advantages are offered to the planter eminently superior to those, the possession of which has, of late years, so greatly enhanced the value and importance of the neighbouring island.*

Cheap labor, 4 Rupees a month.

The chief of all is the cheapness of labor, a cooly receiving even on distant plantations in the " Koondahs" 4 Rupees a month, while in Ceylon 8, 9 and even 10 are given; while in the pay of artizans such as carpenters, sawyers, masons, &c., a still greater disparity exists in favor of this district.† Second to this is the abundance of labor which can always be commanded here, the neighbouring provinces of Malabar, Mysore and Coimbatore supplying coolies in sufficient numbers to meet all demands, and at all seasons of the year; while in Ceylon the utmost difficulty is experienced in most parts to obtain laborers when urgently required; and at all times the supply of coolies is extremely precarious. Planters here have also the advantage of a good public road passing through the heart of the forest land of the " Koondahs," and affording ready means for obtaining supplies, machinery, &c., or of sending away produce for shipment by a route, of which less than 30 miles are by land and 36 by water, to the port of Calicut.‡ One estate which was opened about two years ago near " Wallahkadoo," half-way down the Koondah ghaut, by the late Archdeacon of Ceylon and Mr. Hutson, also of that island, and which I had an opportunity of inspecting recently, on my way up from the Western Coast, is in a very flourishing condition, and has every promise of turning out most successfully. In its neighbourhood are tracts of virgin forest land of immense extent, stretching away over the innumerable spurs and valleys into which the Koondahs are broken as they slope downwards towards the Ponany river, all eminently suitable for coffee planting, having the proper elevation, a

Western slopes of the Koondahs well suited for coffee cultivation.

* Works on Coffee Cultivation by Shortt, Hull, & Laborie, have been published by Higginbotham and Co., Madras.—Ed.

† *Vide* second foot note, page 16.—Ed.

‡ The Sispara Ghaut is never used except by Shikareés now.—Ed.

good and rich soil, and enjoying a climate particularly favorable to the nourishment of this peculiar shrub. If the success which is looked for, crowns the exertions and adventure of the first speculators, there can be little doubt that when the Koondah coffee appears regularly in the market as a production of this district, the attention of capitalists at home will be directed to it, and the western portion of this mountain tract become a source of great increase to the revenue of the country, while it will afford employment and subsistence to the many indigent people in the neighbouring provinces, who, at the present time, suffer such privations from the want of it, between the seasons of sowing and reaping the crops in the plains, and indeed for more than three-quarters of the year.

Plantations at Coonoor and Kotergherry too high.

The other, or what may be called the old plantations in the other parts of the Hills, but principally on the north-eastern slopes, are insignificant in point of size but remarkable for the peculiarly fine flavour of the coffee produced, which is considered to be owing to the high elevation at which most of them are situated. Some plantations near Coonoor and Kotergherry are 5,000 feet above the level of the sea, but it seems to me that the advantage derived from this superiority of flavour is more than counterbalanced by the general want of vigour and luxuriance of the coffee trees, which evidently do not thrive in this latitude so well at an elevation above 4,500 feet, as between that and 3,000 feet. It is not easy to estimate the amount of land at present under actual cultivation for coffee on the Neilgherries, as, in most cases, the coffee fields are so mixed up with the mulberry grounds, that it is difficult to arrive at the precise extent of each, but it may be pronounced not to exceed 280 acres on the eastern side, and 300 acres on the western. The general return of those on the eastern side, which are the only ones at present in bearing, is on an average about 6 to 7 cwt. per acre; which is a remunerative rate under the prevailing circumstances of cheap labor, but the trees require manure to keep them up to this rate of bearing, and more care in pruning and managing than is bestowed upon them.

Salt Provisions.

Salt provisions may be mentioned as an article of produce of the Neilgherries, though the preparation of them is not carried on in an extensive way. Hams, bacon, salt pork, &c., are cured in the settlements and sold at a cheap rate: some cured by European settlers being of excellent quality. I am informed that the Bombay Government were anxious sometime since to enter into a contract for the supply of the Indian Navy with salt

provisions, in lieu of those prepared for Government use in the unsuitable climate of Bombay; but the opportunity of establishing this branch of productive industry on a firm and regular footing was lost, owing to there being no person on the Hills who could be induced to undertake the responsibility of so extensive an engagement. The feeding of stock, if connected with a proper farm on which to raise dry food and support cattle, could be carried on most economically here, especially as regards pigs whose chief food, potatoes, is raised on the Hills out of almost any soil and with a most profitable return. There might be more difficulty in fattening oxen for the salting tub, because the pasturage on these Hills, though for the most part luxuriant, is rank and fibrous, and does not appear to produce fat or flesh in ruminating animals, except in the case of the Hill buffaloe which alone thrives upon it; but as mangel wurzel has been tried and seems to take very kindly to the climate and soil, this difficulty might be overcome by its introduction. A good English grazier also would soon exterminte the bad grass out of his land, and replace it by grass from good mixed seed from home, which experience (on a small scale) has shown to thrive well on these Hills. Clover and lucerne also flourish here, especially on lands not more than 6,000 feet elevated above the level of the sea—in fact under a proper system there never could be any want of dry as well as green food for fattening stock, felt in this district.

Stock for salting could be fed economically.

There is another subject which before closing this chapter I am anxious to draw attention to, and that is the supply of firewood obtained from the woods with which the surface of the Hills is dotted. This may at a casual glance appear comparatively inexhaustible, but I am satisfied it is not so, and that to preserve in localities, where it may be called available for general use, a provision for future years, some measures of conservation should be adopted; more especially should European troops with the host of Natives who will follow them, be permanently located on the Neilgherries. At present, while hundreds of trees are being felled daily, not one is planted, and it is reasonable to anticipate, that unless some system is adopted to conserve and renew the woods, particularly in the neighbourhood of the projected barracks, Government will before long be put to a heavy expense in supplying the troops with this necessary of life from a distance.*

Fuel likely to become scarce on the Hills.

The modes of cultivation adopted by the agricultural Hill tribes have

* Extensive fire-wood plantations of accacias (*accacia lophanta and Robusta*) have been formed during the last few years on these hills by private speculators.—Ed.

been, already, so frequently adverted to in the preceding chapter on productions, that it will be only necessary here briefly to review them. I have described their system of agriculture as radically bad : and it is so for these reasons ; first, because the land is not properly ploughed ; secondly, because it is not properly manured and dressed ; and thirdly, because no change is ever made in the seed which they sow in it ; not even to the extent of bringing it from neighbouring villages, the Burghers sowing the same seed over and over again in the same soil, until an inevitable deterioration takes place in the product.

Modes of cultivation.

The plough used is a most wretched implement, the share being almost invariably a piece of pointed wood, of a tough description, hardened in the fire, and not shod with iron, or any other metal. Owing to this, and to the clumsy form of the plough, which gives the man at the tail but little power over the instrument, the land is not furrowed or turned up beyond a depth of 6 inches, and consequently fresh and unworked soil is never worked up to the surface, but the top soil is alone made use of. The consequence of this, and other causes, is that they can take but one crop off their lands, of wheat and barley, and are then compelled to let them lie fallow always for two, and generally for three years before they are again brought under the plough. Attempts were, I believe, made some time back to introduce cast iron ploughs amongst the Burghers, but, of course, without success ; first, because of the obstruction which their prejudices opposed to the introduction of the novelty ; and secondly, because there were no Europeans to show them how to use them, or how to team their little diminutive cattle so as to enable them to drag them. It would be useless therefore to attempt to make them use a better description of plough, until the means of instructing them in its use could be commanded ; and here again we see the advantages which a model Government farm would present, in the facility with which all such innovations upon their old vicious system could be practically illustrated, and made available for those, for whose improvement it was introduced. At present, instead of making one plough perform the work of furrowing the ground to the required depth, six or seven ploughs are employed, each following precisely in the track of its predecessor, the spike of the one deepening the small trenches scraped by the other ; until, when the last has passed, it has been made what they consider deep enough, when they turn and form a new one. The ground is then worked, chiefly by boys and women, with a small hand-hoe (for they have no harrows or any other farming implement besides the plough), and

Ploughs very bad.

the grass and weeds collected with the hand into small heaps, and afterwards burned. Manure is then thrown over the fields and slightly worked in, and it is then considered fit for the seed. The wretched quality of the manure which they use, next requires notice.

Neglect of manure.

They have no knowledge whatever of the way to produce or manufacture, if the term may be used, manure, by heaping the dung of their cattle, and covering it in with alternate layers of soil, and vegetable substances; but merely take the dung, which has been lying exposed to the sun and weather for months, the whole of the nutritious gases having escaped and its fermentation being long since over, and apply it in its dry and hard, and all but useless state, to the land. The consequence of course is, that the soil derives but little or no benefit from the manuring, no heat is communicated to it to encourage the seeds to germinate, or to stimulate and invigorate the growth of the young plant, and the grain produced is small, light, and poor. There is no doubt, as I have already remarked, that lime is the manure most needed to improve the general soil of the Neilgherries, but the expense of this material of course deters the native cultivators, whose ideas cannot be carried beyond the prospects and returns of the current year, from using it. But this expense, under a proper system of farming, would be found light, as in all probability about 40 bullock-loads, or 2 tons of lime per acre, applied once in five years, would be found sufficient to produce a very great and remunerative improvement in the crops raised.

Lime dressing for the soil.

Expense 25 Rs. per acre, once in five years.

This quantity would cost, for lands situated within 2 or 3 miles of any of the passes or ghauts, about 25 Rupees, and as the lime-burners are always glad to receive Hill-produce in barter for their commodity for the sake of keeping their cattle employed, the cultivators would not be called upon to find capital to invest in this part of their farming operations.

A most essential point on which the Hill cultivators stand in great need of instruction is—the preparation of manure, for which the climate, with its sharp sun heat in the day, and its cold dewy nights, so favorable to the promotion of decomposition, and the abundance of vegetable matter rich in alkali, such as the fern, which is to be found all over the Hills, affords great facilities. Every Burgher and Kother village has a large herd of cattle attached to it, which are penned during the night in a large circular pen surrounded with stone walls, and allowed to graze

over the country during the day. They are never littered at night, and their ordure is allowed to accumulate and lie exposed to the sun in the pen, until it becomes an inconvenience to the cattle, when it is removed and thrown outside, and left, as before, uncovered and exposed to waste away.

Preparation of manure.

Now if a few trusses of fern were to be strewed occasionally over the pen, and all the collections, down to the scrapings of the soil, removed frequently and laid in layers with soil, weeds, fern or other green vegetable matter alternately, the nutritive gases of the dung would be retained, the decomposition of the mass would proceed by slow fermentation, and by continually adding to the heap or forming new ones, every village would have ready for use at the time of sowing, which is as soon as the frosts have ceased, a large stock of the very best and richest manure, instead of the small quantity of almost useless stuff which they now employ. I believe it has been ascertained in England that this system of covering in the layers of manure with soil, adds 50 per cent. to its value, both because the gaseous matter is retained thereby, and because, by its action, the earth laid on becomes impregnated with ammoniacal and other salts, and forms an adjunct to the dung when worked up with it. It is not therefore too much to say that by the introduction of a better system of preparing manure, or rather by the introduction of a system where none now prevails, the produce of the lands cultivated by the Hill tribes would be increased by 50 to 100 per cent., and it would moreover enable them to bring more land under the plough, and avert the necessity which they find, or consider to exist, for allowing their corn lands to lie fallow 2 or 3 years for one year of crop. Indolence combined with apathy, is, however, the prime cause of their deficient system of agriculture; for, I firmly believe, that were fine manure heaps prepared in this way for their use, they would, avaricious as they are, prefer letting a field, capable, if sufficient manure were applied, of producing a crop of wheat, remain fallow through the year, to carrying the manure to it if it lay at the distance of a mile or so off.

No carts employed on farms.

They never use carts to carry manure to their fields or to bring produce home, everything being carried on their heads, although, in many parts of the Hills, the features of the ground would admit of the light bandy of the country being employed very advantageously. Such an innovation would however never be dreamed of. Thus it is that this fine district, capable of being turned to such great account, is perverted in its use, and undeveloped in its resources: grains, which can be produced in almost any soil and in the sultry climate of the plains, raised

on its lands, because they require no manure, or but little, to nourish them, and because their culture, and future management involve no great labor or trouble to the holders of the soil. A striking contrast in respect of agricultural industry, and a desire to improve, is presented by the system pursued by the emigrant natives from the plains, who have settled in various parts of the Hills, principally in the vicinity of the European stations, and employ themselves in cultivating small patches of land for potatoes, turnips and other European vegetables. These men having had the value of the soil pointed out to them, are now commencing in various parts to drain and reclaim the bog lands, and raise upon them crops of the very finest potatoes, with a very small outlay. Their enterprize is however circumscribed by the absence of an extensive demand, and by the want of dealers who might buy up the surplus stock in the settlements, and send the commodity either to Ceylon, where a highly remunerative market would be found, or to the several large stations in the plains where the demand is always active.*

Native emigrants from the plains more industrious than the Burghers.

* The potatoe was originally introduced as a vegetable some years since by the European residents of the place, but the natives soon discovered that its culture would prove a remunerative source of income if undertaken, and in a little time this cultivation had so extended that every patch of suitable soil was converted into a potatoe-field. The roots of a variety of plants are termed potatoes, but it is more especially limited to that family named "*Solanaceæ*," so that there are several varieties which produce edible roots. Of these the chief is the "*Solanum Tuberosum*," more familiarly known as the potatoe. For sometime the potatoe cultivation was confined to some particular stations, but now it has found favor, and is extensively grown throughout the year in most of our hill-sanitaria. At Ootacamund itself the cultivation has been spreading from year to year, and the culture is now being taken up by some of the hill-tribes. That it is a profitable cultivation there can be no doubt, or otherwise the natives would have been loth to attempt it. Not only does the produce find a ready sale among the residents of the place, but it is largely exported to the low country where it always meets with purchasers, and at a very remunerative rate. A maund of good potatoes can now be purchased on these hills for from 10 to 12 Annas, while in some stations on the plains it fetches from 3 to 5 Rupees a maund of 25 lbs. The native finds that in the event of a want of purchasers, himself and family can always consume a great portion of the produce of his fields, for with the knowledge of culture, came also that of the potatoe being an excellent, cheap, and nourishing article of diet, and he has further learned to make a satisfactory meal on a dish of boiled potatoes, seasoned with a little salt and greens; it is not only cheaper than a meal of rice, but is prepared with less trouble, and in fact is preferred by many. The cultivation is perhaps the simplest of agricultural operations on

Wheat, barley, &c., sown in April and reaped in July and August.

Wheat, barley, and most of the other kinds of grain produced on these Hills are sown generally in April, when the frosty weather has entirely passed away, and the crops are cut if the season has been favorable in July. Poppy seed however is sown in October, and the

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these hills. The ground is broken up, the clods crushed and slightly ridged in straight lines—the tubers are cut up into pieces, each containing two or more eyes, and dibbled into the ridges from 4 to 6 inches in depth, and one foot apart. The land requires to be carefully drained so as to prevent the lodgment of water in any part; excessive moisture tends to rot the plant. All that is subsequently necessary is to keep the soil well loosened, and free from weeds, and the stems themselves well ridged around with earth. In the course of some three months the plant attains maturity and pushes forth blossoms; these as a rule, should be broken off as the tendency to fructify diverts the starch or tuber producing powers of the plant to the perfection of the seed. But if allowed to continue, fruits form, and these have all the appearance of the fruit of the egg plant, commonly known by the name of Brinjalls, although in a miniature form. The fruits are about the size of a large marble, free of prickles; and contain but a small number of seeds. As soon as the plant has perfected its tubers it dies away, and the cultivator sets about removing the tubers or potatoes; this is by no means a difficult operation. From the soil having been kept loose around the plant, it is readily removed, and the potatoes are exposed in masses, slightly attached to the soil and hanging on the fibrous roots of the plant. On an average we have found 25 tubers of sizes attached to each plant, of these the largest, weighing 12 oz., was of the size of a double fist, and the smallest, the size of a pea, weighing 30 grains; the average produce of each plant was two pounds avoirdupois in weight; but simply limiting the produce of individual plants for safety sake to one pound each, and taking the acre at 43,560 feet, and instead of a plant to every foot, not more than 43,000 plants for the whole, this with 2,240 pounds to the ton, gives 19¼ tons of potatoes as the yield of an acre. If we allow say 10 pounds for the food of an adult per day, which is greatly in excess, (from 5 to 6 lbs. with other seasoning herbs should suffice,) the quantity would feed 4,300 men, or one man for the same number of days.

The money value of an acre of potatoes would be, even at the low rate of eight Annas the maund, over one thousand Rupees, and allowing three hundred Rupees for land rent, preparation of soil, weeding, sets or seeds, planting, &c., the balance of seven hundred Rupees falls to the share of the cultivator as a clear profit.

Indeed the potatoe is now so well known and recognized as an article of food for man and animals, that its cultivation is daily extending throughout the civilized world, and may be considered next in importance to the cereals as an article of diet. It is true that in this country it is not as yet so common or plentiful as to form food for our domestic cattle, as is done in parts of Europe, for the potatoe does not meet with a congenial soil in all parts of

drug collected in January, as it is found that the opium exudes more freely, and of greater consistency and richness, in frosty than in warm weather. For potatoes no particular time is observed, the sets being put in the ground in any month, except the most frosty ones of December and January, and as soon as one crop is taken up, which is in three months from the time of setting, the land is manured, dug and hoed, and fresh sets put in without any delay, so as to ensure three full crops during the twelve months.

Three crops of potatoes raised annually from the same land.

The prices of all the grains produced on these Hills have been already given in the table at page 25; it is therefore only necessary here to particularize those productions which have not found a place in that return.

Prices of principal products.

Coffee.—The average price of coffee in the bazaar is 5 Rupees per maund of 25 lbs.: but it fluctuates much, being at the present moment not more than 4 Rupees a maund, owing to the anxiety of growers to get rid of their crops picked in November and December on the spot, to avoid the expense and risk of sending them to Madras or to the Western Coast for shipment.

Silk.—For this article there is no sale on the Neilgherries.

Southern India. In the plains as a rule, with some few exceptions, it does not thrive, and when it does it is subject to destruction by white ants and other insects. It thrives well at Bangalore and a few other places. It has succeeded tolerably well in the Deccan, but on these hills it luxuraites; three corps have been successively taken off the soil in the course of the year, and if greater attention were given to agricultural operations, and what is termed high farming brought into play, we see no reason to doubt why four crops in succession should not be taken off the acre in the course of a year. It is possible perhaps that frost may prove inimical to the successful growth of a further crop, but, that will depend greatly on the situation and aspect of the plantation. Cultivators have no reason to fear that by extension of the cultivation the market will become over-stocked; on the contrary, in proportion to the produce will the demand extend, and the consumption of the article, at present confined to the well-to-do classes, will soon extend to others, and create a larger demand. We believe that potatoe cultivation is open to great extension, and will eventually find much favor with agriculturalists as a paying produce; and as the article cheapens, it may with advantage be converted into food for cattle, eventually returning itself in good beef and manure. We believe there are great openings for the potatoe trade, not only by supplying the shipping at the several ports, but also by importation to localities where the potatoe is not to be had.—ED.—(*This article was originally written for the Neilgherry Excelsior.*)

Hides.—These are to be obtained, but in limited quantities—Buffalo hides are sold at 2 Rupees each, and ox hides at 9 Annas.

Building Materials.—(At Ootacamund) bricks per 1,000, Rupees 2; tiles per do., Rs. 1-12;* teakwood and chunam are brought, the one from Seegoor and the other from the province of Coimbatore.

Salt Provisions.—Hams are sold at 5 As. per lb.; bacon at 4 As. per lb.

Butter.—Fresh, 1 Rupee per pound.

Jungle-wood.—The best description is the "Bastard cedar" which is now extensively used for flooring planks and doors, shelves, &c., in house-building. The price is about 7 Annas per 12 square feet of one inch thick. Rafters, lintels; beams, &c., in proportion.

Bees Wax.—Unbleached, is sold by the Erulars and Coorumburs at ¼ Rupee per seer.

Castor Oil—Of very excellent quality is expressed here, and is sold at 3 Annas per quart bottle, or about 1 Rupee per imperial gallon.

The prices of these articles of course differ at each of the three settlements, but the difference is slight and not worth recording in this statement.

Tenure and occupation.

Land is held on the Neilgherries by European settlers, under a putteum or grant from Government leasing it to them in purpetuity, so long as the regulated assessment is paid. In the Cantonment of Ootacamund grants are made of the land without any fee being exacted, but beyond its limits, as every spot, whether utterly barren and incapable of production, or only untilled waste, is laid claim to by either the Todars, the Burghers, or the Kothers, the land has to be purchased from one or other of these tribes, who exact such price as they think fit. After such purchase has been effected it is necessary to apply to the Collector of the District for a putteum, or acknowledgment of right to occupy and cultivate, though this may be considered a matter of mere form. The tenure of land by the various Hill tribes will be more fully entered on in describing each separate race of people; it will therefore only be necessary to record here, for the sake of reference, the general circumstances which rule it.

Tenure of the Todars.

Todars hold their land, which they consider to extend over the whole plateau, by right of immemorial occupation, alleging that their ancestors came to the Neilgherries before there were any kings or sovereign rulers in Southern India, and never paid tax or tribute to any one.

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* Since the above was written the prices have increased three times as much again.—Ed.

Tenure of the Burghers.

The Burghers hold their land, which, if their vague claims are to be allowed, may be stated as comprising two-thirds of the whole Hills plateau, nominally by permission of the Todars, to whom they pay in acknowledgment of the proprietary right of the latter a "goodoo," or tribute (being synonymous with the word "Yomeah" in Hindustani) which ought, according to the claims of the Todars, to amount to $\frac{1}{6}$th of every description of grain produced by the cultivators. This "goodoo" is, however, evaded to a great extent, the Burghers giving to the Todars just what quantity of grain they think fit to part with, and of those descriptions which they can the most readily spare; while some refuse to give anything at all until compelled by the Todars. This system, in its enforcement without the direct sanction of Government, naturally leads to much wrangling and confusion, and may hereafter be productive of mischievous consequences, as the sentiments of the Burghers change, and they view, as they already I think begin to do, this "goodoo" in the light of an illegal and unauthorized impost. They admit that before the days of the East India Company they used to pay $\frac{1}{6}$th of their produce to the Todars, but that was when their number was small; and when more of their tribe came from the north country to join them, and when they began to imbibe notions of independence from the Europeans, they reduced their tribute, until it has arrived at its present footing, that of a "Yomeah" or voluntary contribution.

In speaking of the collection of the "goodoo" by the Todars, the Burghers speak of the Collectors as "peechakarur" (which means "beggars"), a term sufficiently explanatory of their view of the question of right on the part of the Todars to demand the tribute.

Tenure of the Kothers and Erulars.

The Kothers hold their lands under the same terms. The Erulars hold the patches of land which they cultivate and which are all situated to the eastward, near Rungaswamy peak and the Kotergherry pass, independent of the Todars, who profess not to assert any proprietary right over the lands which extend below the actual summit or plateau of the Hills. The Erulars have a loose kind of tenure of their land, holding it at pleasure so long as they pay the assessment. But they cultivate so little that it is scarcely worth noticing.

Modes and rate of assessment.

The assessment on lands on the Neilgherries is divided into two classes, one applicable to those held by the native agriculturists, and the other to those occupied by European settlers.

It is levied on the former according to the measurement of fields actually bearing crop, estimated in "vullums" (pronounced sometimes

" bullahs"), each vullum being equivalent to 2 cawnies, 21 grounds, and 864 square feet; or in English measurement 1 vullum = $3\frac{41}{50}$ acres: the rate of assessment being fixed according to the nature and abundance of the crop which the land is bearing at the time of measurement. When harvest time approaches the gomastahs and curnums proceed to the different villages, and form an estimate of the probable out-turn of the crop on each field from its appearance, rating it as first class if it promises to be abundant, and as second class if otherwise.

The highest rate levied is on lands cultivated for potatoes which pay
7 Rupees per vullum for 1st class ground,
and 5 do do do for 2nd do.

The next rate in the scale of assessment is applied to lands bearing

Wheat, which pay for 1st class ground Rupees......	3	8	5
and for 2nd do ,,	2	5	7
Barley, which pay for 1st do ,,	3	8	5
and for 2nd do ,,	2	5	7

per vullum, and the same for poppy, vendium, mustard seed, garlic and onions.

The lowest rate applies to raggee, samee, koralley, peas, shanungee and tenney, all of which pay Rupees 2-0-11 per vullum, for 1st class land, and for 2nd class Rupees 0-14-1 per vullum.

For further particulars regarding these rates of assessment and their equivalents per cawny and per acre, I may refer to the table at page 25 of this memoir.

Lands held by Europeans, whether by grant of Government within the limits of the Cantonment, or purchased from the Hill people in more distant localities, pay assessment as follows:—

For ground occupied as sites of buildings......Rupees 5 4 0 per cawny.
For ground appropriated for gardens and general agricultural purposes............... ,, 1 2 4 do.

Labor employed and its remuneration.

The description of people, available on the Neilgherries as laborers, differs according to the situation of the land on which they are required to work.

Thus in and about the settlement of Ootacamund, the coolies employed are all emigrants from the plains of Canara, Malabar and Coimbatore, or from the Mysore territory; the Canarese and Mysoreans being the most numerous.

Their remuneration is commonly $2\frac{1}{2}$ Annas per day, or $3\frac{1}{2}d.$*

In the vicinity of Burgher villages, and especially about Coonoor and

* *Vide* second foot note, page 16.

Kotergherry, Burgher labor is available in abundance at the rate of 2 Annas per diem, and they are extensively employed by settlers to cultivate their gardens and to work on plantations. Carpenters and bricklayers are mostly people from Paulghaut in Malabar, or from Coimbatore; their rates of pay vary according to their expertness, from 8 Annas a day to 6. Stone-cutters work by the piece, receiving on an average, for smoothed granite slabs, steps, coping stones, &c., 8 Annas per running foot, of about 1 foot by 6 or 8 inches, breadth and depth; sawyers in like manner work by the piece, at the rate of about Rupees $2\frac{1}{4}$ per 100 feet of surface cut.* It is difficult to obtain the services of this class of artizans on the Hills, as they all resort to the teak forests at Musneum Coil and Tippacadoo, near Seegoor, where they always find abundant employment.

Brick-makers and tile-makers work of course by contract, at the rates already specified under the head "Prices of principal products."

There are several tolerable blacksmiths, silversmiths, and abundance of tailors settled in Ootacamund and the minor stations; while on the eastern side of the Hills the Kothers are generally employed as artizans for rough smith's and carpenter's work.

These Hills possess a great advantage in regard to labor, which is, and always must be, abundant; because as soon as the seed is put into the ground in the adjacent low country, the poorer class, or laboring men, are thrown out of employment until harvest time is past, unless some extensive public work happens to be in progress, and therefore come to the Neilgherries for work in preference to wandering away to Ceylon and other parts to search for it, whenever a demand exists here for their services.

The common rate of pay to all such laborers employed on plantations is 4 Rupees a month,* and for this sum they labor contentedly for nine hours a day, performing work which, though it cannot be compared with negro labor, must nevertheless be pronounced cheaply remunerated at the rate quoted above.

Rivers.

There are no navigable rivers in the Hill district, although one of the many which take their rise amongst these mountains called the "Moyaar" swells into a stream of considerable width and depth at Pykara, where it is crossed by means of a double ferry boat and a ford.† This river rises at the foot of the remarkable moun-

The Moyaar.

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* *Vide* second foot note, page 16.

† "The Pykara River takes a winding northerly course diverging both to the west and east, it is at least ten miles in extent from the Makoorty peak to the

tain called "Makoorty Peak," receives the drainage waters of the Pichul and Pykara valleys, and, descending the Hills at the N. W. angle by a fall near Neddiwuttum, turns due east after reaching the plains, and flowing round the base of the Neilgherries on the northern and eastern faces, unites itself, near Danaikencotta in Coimbatore, with the Bowany.

The Bowany.

This latter river takes its rise amongst the southern spurs of the Koondahs, receiving near the foot of the Madoor or Shoondaputty ghaut a large tributary which rises near the "Avalanche" on the N. E. face of the Koondahs, and swelling into a large stream near Matepolliem, where it is crossed by a large masonry bridge, continues its course eastward, after its junction with the Moyaar, until it flows into the great Cauvery near the town of Bowany.

The Calicut river.

Another important river, which also owes its origin to the Neilgherries, is that which flows into the sea at Beypore near Calicut. The head of this stream is formed by the drainage of the elevated tabular mass of hills, which have been before described as occurring to the N. W. at Neddiwuttum, and though it descends the face of the Hills at no great distance from the fall of the Moyaar, the intervention of a sharp spur diverts its course into an exactly opposite direction, forcing it over the ridge called the Carcoor or Yellamullay Hills to find its way to its embouchure on the Western Coast, while the waters of the Moyaar discharge themselves into the sea on the eastern.

Falls. It passes along the base of, and between granitic hills and subsequently joins the Moyaar, which at a distance skirts the northern side of the base of the Neilgherries, and ultimately becomes incorporated with the Bowany near Danaikencotta in the Coimbatore District. Near the Travellers' Bungalow at Pykara, ten miles by the old road from Ooty, the river is about forty yards wide in the dry season of the year, and contains a succession of deep pools divided by shallows, in which are large boulders of rock. On the fords the beds are gravelly, but covered by a fine red sand, with which the water appears impregnated. There are a few trees along the banks, which in places are moderately high. In wading across the stream a person's legs are immediately attacked by numerous fine Leeches, which absolutely swarm in the water. Crabs are captured at every throw of the Cast-net. Frogs abound as do also the Ephemera of the Dragon-fly at certain seasons, and a large *Nepa* is also occasionally perceived. Otters are sometimes seen on the banks of the river, and the minute King-fisher is not rare. The temperature of the water from a few observations made, seems to be rather colder than what obtains in the stream at Coonoor." Pisciculture on the Neilgherry Hills, by Francis Day, F.L.S., F.Z.S., M.Q.J.M.S., Volume XII, p. 43.—Ed.

Swamps useful in retaining water.

The Neilgherry mountains afford a great, and, practically speaking, inexhaustible supply of water by means of the innumerable swamps and morasses which occupy the hollows of most of the valleys, particularly to the westward and northward.

The rain which falls during the wet season instead of running off to waste at once, as it does from the surface of the hard ground, is imbibed and retained by these morasses to such an extent, that throughout the year, including the whole of the dry monsoon, a constant and abundant supply of water is yielded from these natural reservoirs, which seem provided to obviate what, but for their occurrence, might, after unusually dry seasons, be the evil of drought in the district.

Owing to this cause there is scarcely a stream or rivulet on the Neilgherries, which ever completely dries up at any period of the year, even in the most unfavorable weather, and hence a supply of water is constantly descending, to swell and feed the streams by which the surrounding low country is irrigated.

Lake.

The only sheet of water which merits the appellation of a lake is one situated at Ootacamund within the Cantonment, formed by throwing an embankment across the narrow outlet of a valley through which a considerable stream, fed by numerous swamps in the neighbourhood, used to flow, and thus arresting its waters, and accumulating them so as to form a lake or tank. The object with which this sheet of water was produced was purely ornamental, a drive having been made round it for recreation and exercise, resorted to by the residents of Ootacamund. The surplus water is drawn off by means of a sluice at the bottom of the embankment, and continues its course to the north as before.*

* "The Ooty Lake, situated 7,600 feet above the level of the Sea, is nearly 1½ miles in length, and would admit of great extension were a bund placed some miles lower down the present stream. In some parts it is of considerable breadth and very deep. It has been formed by a dam thrown across the openings between two hills. At the upper or south end it is constantly fed by a small stream which escapes by an overflow under a bridge at its lowest or northern extremity, but the great bulk of the water is derived from the heavy rains during the monsoon. It is divided into two portions by a bund, under the centre of which is a bridge. The upper part of the lake is small in extent during the dry months, and has rank grass growing along its sides, and on the little Islands which are dotted over its surface, whilst it is exceedingly dirty from the deposits either washed down from higher levels during the monsoon time, or thrown into it from the Native Bazaar which extends along its eastern side, it is also gradually silting up from the mud washed into it during the monsoons, or purposely conveyed there from

Means of irrigation.

Gardens and cultivated grounds requiring a regular supply of water (as poppy fields) are irrigated, where circumstances allow of it, by means of channels led off from the valley streams; but the dry grain cultivation in the different parts of the Hills is sufficiently assisted by the rains and by the moisture which the soil, from its composition and depth, has a great tendency to retain.

As the value of land increases on these Hills, and their capabilities become more thoroughly appreciated—as begins to be already apparent from the increase of permanent settlers on them, both European and Native—it will I think be found highly necessary to establish some stringent regulations for the control and appropriation of the water of the Hill streams. In the valuable Despatch of the Honorable Court of Directors to the Supreme Government upon the subject of the Dheyra Doon and Gorruckpore survey, dated 23rd February 1842, by the resolutions laid down in which it would appear by their Despatch to the Government of Fort St. George, para. 12, No. 13 of 1843, Revenue Department, the Honorable Court desire that all matters relating to the Neilgherry district should be adjudicated, it is specified (in para. 63) "that that the control of all streams and canals be in the hands of Government."

Much litigation constantly going on about rights of water.

This principle of control does not certainly obtain in this district at the present time—parties cutting channels and leading off water from a convenient stream at pleasure, without any permission asked or obtained from the Civil authorities, and frequently without the consent or knowledge of the proprietors of lands through which their channels are brought. No system is observed in the management of

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the cutting on the road to Coonoor. The lower and largest portion of the lake is clear, broad and deep in places: Grebes, *Podiceps Phillippensis*, a few Moorhens, *Gallinulæ Chloropus*, and occasionally a Coot, *Fulica Atra*, may be seen swimming about on its surface; the two former species breed there. The Brahminee Kite, *Haliastur Indus*, and common Kites, *Milvus Govinda*, are generally skimming above the water, and the little King-fisher, *Alcedo Bengalensis*, hovering about. Leeches abound, there is also a very large *Nepa*, some Water Beetles, and numerous *Lymnea*, whilst along the margin, during the warm weather, Dragon-flies may be seen in myriads. Frogs and Crabs are not so abundant, as in many other pieces of water on the Hills. The temperature of the water appears to be almost invariably higher than that of the air." Pisciculture on the Neilgherry Hills, by Francis Day, F.L.S., F.Z.S.—Madras Q. J. M.S., Volume XII, p. 42.—Ed.

these channels, so that were a slight deviation in their course might render the water available for neighbouring lands, we find such a principle of accommodation neglected, and frequently an immense and reckless waste of the element permitted, amounting to a hundred times more than is made in any way available by the self-constituted proprietor. Other parties again, whose land lies between a head of water and the ground of another proprietor, refuse permission to the latter to lead it through their premises, to his own, thereby inflicting injury on the individual, and causing detriment to "the property of Government," for as such, under para. 61 of the Dheyra Doon Despatch, the Honorable Court have decided that "all grants are to be considered," being merely held as "leasehold land under Government." On this subject I would beg leave to suggest that as "Government are to retain control of all streams" on these Hills, and as the lands cultivated as gardens pay a high rate of assessment, the same system as to the distribution of water for the use of each proprietor, should be followed in this district, as prevails in the low country, where not a cubic foot is allowed to be wasted or misappropriated. This interference on the part of the Government authorities does not seem called for in any other parts of the Hills than the stations where Europeans, East Indians, and Natives have settled, viz., Ootacamund, Coonoor and Kotergherry, as the Burghers and other aboriginal cultivators make no use of water for the purpose of irrigation save for poppy, onion and garlic fields, which are not so numerous as to have given rise to any disagrëement between adjacent villages upon the subject: whereas at the settlements it affords a fertile, and constantly recurring cause for litigation and misunderstanding.

Towns and villages.

The only town on the Hills, properly so called is "Ootacamund," and even this term can only be applied legitimately to the native portion of the settlement, since the residences of Europeans are too widely dispersed along the slopes of the valley in which the station is situated, to admit, at present, of its further extension. So rapidly however is the number of houses increasing and keeping pace with the increased resort of Europeans to these Hills from almost all parts of India, while at the same time a consequently augmented demand for supplies for the European community is daily drawing more native merchants and traders to the place as permanent settlers, and thus swelling the size of the bazaars beyond all bounds, that before long the term "town" will not be inappropriately applied to the whole settlement, while that of "cantonment" will be transferred to the valley of Jakatalla where the European barracks are about to be built. The houses of the European inhabitants of the settlement are for

the most part substantially built; the walls are usually of burnt brick set in clay, and pointed or plastered with lime, roofs of tiles, or pukka terraced, and rarely of thatch, while all the timber work of the roof, doors, floors, &c., &c., is of teak, which is brought at a great cost up the Seegoor pass from the forests on the borders of Mysore. There are however many excellent and durable descriptions of house-building timber to be procured on the Hills at one-quarter the cost of teak; but a prejudice exists against their use, because roofs constructed with Hill-grown timber have, in some instances, been found to decay with great rapidity; and hence its employment has been condemned by builders, who have overlooked the real cause of its decomposition, which is its being put together and covered in before it has been sufficiently seasoned.

Much good timber for building to be obtained on the Hills.

As an instance of its efficiency, if attention is paid to this important point, and the wood properly selected, I may mention that the present Survey Office has a roof, made entirely of jungle-wood cut on these Hills, which has been standing more than 20 years, and which on a recent examination was found to be perfectly sound. All other building materials (except lime) are procured on the spot, abundance of tolerably good brick clay being found in every part of the Hills.

Bricks and tiles very bad.

The bricks and tiles made are, however, very inferior, but this is owing to the wretched way in which the clay is worked and moulded. A laborer mixes a little water with it with a mamotie, treads it for a few minutes with his feet, and then pronounces it tempered, and carries it to the moulder without further preparation. Bricks can be contracted for in Ootacamund, delivered at the kiln at Rupees 2 per thousand; and tiles Rupees 1-12 per thousand.* Lime, as I have elsewhere observed, does not occur, or at least has not yet been found, on these Hills; and hence, having to be brought on bullocks from the plains, it forms the most expensive item in building estimates. Its use is economized as much as possible in house architecture, by using mud as a cement to set the bricks in, in constructing walls, reserving lime only for use in turning arches, ridging the tiles in the roof, flooring, and either pointing or plastering the walls outside, with which protection, brick and mud walls are found to answer very well, especially if the roof over them is kept tight, and their surfaces screened from the beat of the rain against them by a

Lime dear.

Clay used as cement for walls.

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* Vide foot note, page 37.

verandah. In the bazaars of Ootacamund, which are called "the bazaar" and "Caundle bazaar," the houses are of all descriptions, both pukka and cutcha. The streets are wide and well kept by the Police authorities, by whom a tax varying from 1 Anna to 1½ on each house per mensem is levied to support the scavenger establishment, the residue being paid into the public Treasury—and if good regulations are enforced as regards the laying out of future quarters of residence, already fast extending, the town which the bazaars will constitute will become a very cleanly and compact one—and hence doubtless healthy also. It has the advantage of being bordered by the lake or tank, which adds of course materially to its means of preserving cleanliness.*

The following is a Return of the European and Native population of the three settlements taken in February, 1848, and although many present inhabitants with their servants and followers will have left the Hills before the year ends, the total numbers may yet be taken as a pretty correct average of those usually residing, as of course the place of those removing is soon occupied by fresh comers from the plains.

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* Since these pages were written by the talented Officer, now no more, many improvements have been effected, but not before they were wanted. Owing to the extension of the Town and increase of population, and the neglect of all sanitary measures hitherto, Typhoid Fever is said to have shown itself on these Hills of late years. Among the many improvements, not the least is the constitution of a Municipality. The Members of this Association with praiseworthy zeal, are endeavouring to effect all the good in their power with the limited means at their command. The government of Lord Napier is evidently evincing interest in this beautiful Sanitarium, and is encouraging public works of utility. The drainage of Ootacamund is now under the consideration of Government, and will, we have no reason to doubt, be called into play before long. That portion of the Lake, east of the Willow Bund, is now being filled up rapidly under the orders of Government. With these and other improvements now in progress, or under consideration, promises a bright future for the Neilgherries: more especially if the several valuable suggestions made the other day by our able and distinguished Sanitary Commissioner, be carried out in their integrity: the Neilgherries will then cope with any part of the world for health and salubrity.—Ed.

Population of the European Settlements on the Neilgherry Hills.

	Europeans.				East Indians.				Hindoos.				Mussulmauns.				Pariahs.				Number of European Houses.	Number of Native Houses.
	Adults.		Children.		Adults.		Children.		Adults.		Children.		Adults.		Children.		Adults.		Children.			
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.		
Ootacamund	93	97	57	66	38	34	22	23	935	828	431	501	341	238	130	143	1642	1506	732	752	146	1743
Kotergherry	9	5	4	4	8	6	11	12	49	49	17	20	7	5	3	1	56	55	22	24	15	98
Coonoor	5	2	0	0	1	1	0	0	80	65	32	29	9	9	8	7	50	60	20	19	15	131
Aravungaad*......	0	0	0	0	0	0	0	0	3	3	2	1	6	0	0	0	6	7	4	4	0	12
Total Population...	342 Souls.				154 Souls.				3,045 Souls.				901 Souls.				4,941 Souls.				176	1984

* A small Native settlement in "Sappers' valley," between Kaitee and Coonoor.

The settlement of "Ootacamund" is situated in an extensive open valley, almost in the exact centre of the Hills, open to the westward, but bounded on the north, east and south by the great Dodabetta range, or spurs projecting from it westward.

The settlement of "Coonoor" is situated on the crest of the Hills in the S. E. angle of their summit, the residences of the Europeans, including an hotel, being placed on the rounded tops of a range of hills which runs from a high mountain called "Coonoor-betta" towards the top of the pass, while the bazaar or native residences are in the hollow below, and adjacent to a masonary bridge which spans a wide stream flowing from the Jakatalla valley and descending the Hills at this point in a large volume of water.

The settlement of "Kotergherry" which with that of "Dimhutty" which is contiguous to it, is the oldest on the Hills, is situated in the N. E. angle of the plateau immediately overlooking the low country and at the head of the Kotergherry Ghaut. The bazaar which is increasing considerably in size, is built on the same range, with the residences of the Europeans.

"Dimhutty" cannot now be called a settlement, since there is but one habitable residence existing there; all the bungalows built long since by Government for the accommodation of invalids, having gone to ruin and become unfit to occupy or repair. The temperature is warmer at this place than at any of the other three settlements, and hence it is very rarely resorted to by Europeans. Under this head may be enumerated the public bungalows and chuttrums, or caravanserais, for the accommodation of travellers, Native and European, and which are under the control of the Officer Commanding the Neilgherries, and kept in repair by him at the public expenses.

Accommodation for travellers.

List of places of Accommodation for Travellers.

	For Europeans	For Natives.
At Ootacamund..................	None.*	1
,, Coonoor............................	1	1
,, Kotergherry...	None.	None.
,, Neddiwuttum........................	1	None.†
,, Pykara..............................	1	None.†
,, Kulhutty (Seegoo pass.)......	1	None.
,, Nunjanaad (Koondah road)...	None.	1
,, Avalanche (ditto)...	1	1
,, Burliar (Coonoor pass)	None.	1
,, Kaitee (Coonoor road)	None.	1

* 1. Now a "Traveller's Home." | † A chuttrum, lately erected.

Villages.
Situations and general description.
Toda-munds.

The total number of Toda villages, called "Munds," on the Hills is 85, the whole of which, with the exception of 11, are situated in the division called the "Toda-naad," and almost all to the extreme west of that part, approaching the Pykara or Moyaar river. They seldom comprise more than three residences or huts, with one building consecrated to their deity, and which is also the dairy or place in which their milk, curds, ghee, &c., are kept, and one large circular pen for their cattle, surrounded by a substantial stone wall, and closed by sliding bars at one opening for entrance and exit. The sites chosen for these munds are in general most picturesque—always adjacent to a wood, and usually on an open space of grass almost completely embosomed in it, and extending in gentle slopes covered with the richest turf, which the grazing of their cattle (and the consequent manuring) maintains in the finest order. Their huts are low, arched buildings, resembling a hay cock, but admirably contrived to keep out rain and cold, the roof and side-walls forming one continuous curve of split bamboos, rattan and thatch; having an end wall strongly built and a front wall with one small opening or door in it, so small indeed that the inhabitants have to crawl on their hands and knees to enter by it. Besides the dairy there is generally one small hut attached to the mund, in which the calves they breed are kept separate from their dams.

In addition to their villages or munds, the Todars have five sacred places in which only two men reside called "Polaul" and "Capilaul," devoted to a priestly life and living apart from the rest of their tribe. A temple and a cattle pen is attached to each of these sacred munds, which are usually situated in the bosom of a thick wood, so as to be screened from the vulgar gaze.

Burgher villages.

The villages of the Burghers are, in general, very neat and clean, the houses, which are few in number, averaging 10 or 12, being built in a row on the summit of a low smooth hill, and having a wide level terrace running along the front, for the purpose of spreading out their grain to dry after damp weather, and also to pick and husk it on. They have usually two substantial cattle pens, or more, according to the size of the village, with high rough dry stone walls and barricaded entrances, to secure their cows and bullocks against cheetahs and tigers, which though not common on these Hills, occasionally find their way up from the forests below—and traverse the district, doing much mischief as they pass.

The houses are built with mud, or mud and stone, and covered with a good roof of thatch, grass for which is abundant in all parts of the Hills. There are altogether 227 Burgher villages on the Neilgherries, viz:

67 in Todanaad,
86 in Meykenaad,
and 74 in Parungenaad.

Kother villages.

The villages of the Kothers, from the fact of their low caste obliging them to consort together in large communities, present the most thriving appearance, and boast the largest number of houses, in general, of any of the Hill hamlets. But owing to their dirty habits, and the want of order in the arrangement of their dwellings, their villages have by no means the neat appearance presented by those of the Burghers. Mud and thatch are the principal materials with which their huts are built, but they form with them very substantial and weather-proof buildings. There are six Kother villages on the plateau of the Neilgherries, and one near the foot of the Neddiwuttum Pass, situated on a low spur projecting from the foot of "Goodlur Mullay," but as the survey does not include the site, it has been omitted in the return.

Erular villages.

The villages of the Erulars are more numerous, there being 22, all situated in the eastern part of the Hills. With a few exceptions they are very small, comprising only 5 or 6 houses and a couple of cattle pens. Their sites are selected in low spots, near the patches of plantain and other fruits which these people cultivate. The houses are of much the same description as those of the other tribes already described, and are generally very dirty. There are more Erulars to the south, but they are situated far below the plateau to which the survey has been restricted, and no account has, in consequence, been taken of them. The same is to be said of the Coorumbur villages, if indeed that term can be applied to the collections of scattered sheds, in which this wandering race are occasionally come upon in the jungles below the crests of the Hills. From their mode of life it is found impossible to obtain any return of their number.

Population.

Appended to this memoir will be found tables furnishing all particulars of the several tribes, constituting the body of aboriginal settlers on these Hills, and of the European and other inhabitants of the three settlements. The following is the summary.

		Souls.	Souls.
	Europeans, including Children	0	342
	East Indians do. do.	0	154
	Hindoos do. do.	3,045	
	Mussulmans do. do.	901	
	Pariahs do. do.	4,941	
			8,887
Hill Tribes.	Todars do. do.	337	
Hill Tribes.	Burghers do. do.	6,569	
Hill Tribes.	Kothers do. do.	307	
Hill Tribes.	Erulars do. do.	461	7,674
	Total Population of the Neilgherries.	....	17,057*

Deducting from the total area of the plateau, that portion lying to the westward of the Pykara, or Moyaar river, which I have elsewhere described as almost entirely uninhabited, there remains a space of 420 square miles over which this population is distributed, giving a proportion of 40 souls to one square mile.

For the reasons already stated under the preceding head, no place or number can be assigned to the tribe of Corumburs in this statement. Their number must however be very insignificant, probably not above 2 or 300 souls. With the exception of the Todars, who pass their days in utter idleness, all the aboriginal tribes, or mountaineers of the Neilgherries, devote themselves to agricultural pursuits. With these duties the Kothers alone combine those of the artizan in a humble way, as will be treated of in describing the people of that tribe.

Employment.

This remarkable race differ in almost every essential respect from all other tribes of the natives of Hindustan, and their singular characteristics and strange habits have given rise to much speculation as to their origin and history. As no clue has however yet been discovered either in the form of monuments, coins, or even in their own traditions, by which research could be directed, all theories broached upon the subject cannot be otherwise than vain and illusory,

The Todars, or Todawars.

Total number 337 souls.

* *Latest Statistics of Ootacamund, July* 1868.

Average number of houses let to Europeans in the cold season, including East Indians	106
Actual number of houses in Ootacamund, European and East Indian, including Government buildings	230
Native houses	1,602
Resident population, European and East Indian, about	1,250
Resident population, Natives, about	7,000
In full season, about... extra	500

—Ed.

especially those which have been based upon the assumption that the images, bones and other relics which are found in the remarkable "cairns," discovered in such numbers all over the Hills, belonged to the ancestors of the Todars.

That these are not relics of the founders of their race is proved by the present people denying all knowledge of the history of the cairns, even by tradition; and by their looking on at their desecration with as much curiosity and indifference to the sacrilege, as is displayed by the antiquarian explorer, whom they have perhaps guided to the spot. In form and countenance the appearance of the Todars is remarkably striking. Tall, well proportioned and athletic, their bold independent carriage, and finely moulded and sinewy limbs attest that they can be sprung from no effeminate eastern race, while their aquiline nose, receding forehead, and rounded profile, combined with their black bushy beards and eyebrows, give them so decidedly Jewish an aspect, that no beholder can fail to be impressed with the idea that they must, in some way, however remote, be connected with one of the lost and wandering tribes of the ancient Israelites. Their dress is as peculiar as their habits and appearance, consisting of one single cloth, a sort of toga, which they wear after a fashion well calculated to set off to advantage their fine muscular form, being disposed about their person like the plaid of a Scottish Highlander. They have no covering for the head of any kind, but never allowing knife or scissors to approach their hair, they suffer it to grow into a mass so thick and bushy, as to form a most effectual protection from the inclemency of the weather.* The women are rather fair in complexion, the hue being a dull copper color in both sexes, and are generally handsome in feature as well as in person, which is tall and well-shaped like that of the men, their attire being equally simple and peculiar. The little occupation which the Todars permit themselves to engage in, is solely of a pastoral kind. Considerable herds of buffaloes are attached to each mund, and to milk these, convert their milk into ghee, drive them out to pasture in the morning and home at night, and to keep their huts and the walls of their cattle pens in repair, constitute the sum of their employment, from year to year of the useless existence. Their food consists of curds, milk and ghee mixed with whatever grains they can obtain from the agricultural tribes in the shape of "goodoo" or tribute

Personal appearance very striking.

Dress peculiar: the toga worn.

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* This is a mistake—the Todars cut their hair to shorten it, and occasionally shave as a token of mourning on the decease of relatives.—Ed.

reside with her at pleasure and by turns. To such practices as these it is doubtless to be attributed that this race does not increase in numbers, and is evidently deteriorating in physical endowments.

The great mass of the Todars inhabit the valleys and woods to the westward of the plateau, being confined with the exception of five inhabited munds in Parunganaad, and two in Meykenaad, to the division called Todanaad—and it will be seen by the map, that in this portion of the plateau their munds are principally congregated to the westward, apart from the villages of the Burghers, only a few in the neighbourhood of Ootacamund and to the northward being interspersed amongst their cultivated lands.

Desirable if possible to restrict the Todars to the western confines of the Hills.

And to this portion of the Hills, viz., to the extreme westward, it would be highly desirable that the whole tribe should be restricted; as they would have the benefit of abundance of excellent pasture land for their cattle, and being there entirely apart from the other inhabitants of the Hills, would be free to carry on their rites and superstitious observances, without hindrance from others, and without the possibility of causing annoyance to the rest of the population. It has been distinctly stated to me by the Todars, Burghers and the talook Civil authorities, that the Burghers whose villages are situated in Todanaad have to support, by payment of the "goodoo," all the Todars who occupy munds in that division, without aid from the Burghers of the other two naads, who are only bound to maintain the Todars who actually reside within their respective limits. Hence an apparently palpable injustice to the Burghers of Todanaad, since, as will be seen by the census returns, the tribe are pretty equally distributed throughout the three naads; whereas out of a total of 337 souls, of which the tribe of Todars at present consists, only 42 are located in Parunganaad and 10 in Meykenaad, while all the rest, amounting to 285, are located in Todanaad. This seeming difficulty in equalizing the infliction of the "goodoo" impost is overcome in the following manner. As soon as harvest is over, and the "goodoo" collected in Todanaad, the Todar men of that division pay visits to the munds in Meykenaad and Parunganaad, and take up their abode with the women of the community (to the temporary exclusion, as is their custom, of the legitimate husband.) They then pay visits to the surrounding Burgher villages and demand, in their right as temporary husbands of women of the naad, the "goodoo," which, strange to say, is paid; and thus the same man perhaps who has laid a whole

Levying contributions on the Burghers.

village in his own naad under contribution, goes the round of the other two naads appropriating the fruits of the Burghers' labor and industry, and carrying off enough grain to support his whole community in idleness and plenty until the arrival of the next year's harvest time—and to produce by sale in the nearest bazaar, sufficient money to pay the tax or "pillooverry," which is levied yearly on their tribe. I should have refused credence to such a statement had I not received it on the best authority, that of the Tahsildar of the district.

Migrate from mund to mund.

The habits of the Todars are migratory, almost every community or particular group of families consorting together, having two or more munds or villages belonging to them, between which they divide their time according to custom, fancy, the state of the weather, or other circumstances, such as the death of one of their body, upon which occurrence they immediately migrate to another mund. The grass upon which they pasture their buffaloes is of a coarse rank description, fit only for those hardy and powerful animals; but by burning it down, as is their practice, just before the rains set in, when they are about to migrate to another mund, a fine tender young grass, highly nutritious as pasture, has replaced the ashes of the old grass by the time they return to the mund, round which they had run their fires.

Fine breed of buffaloes decreasing.

According to their own statements, the fine breed of buffaloes which seem peculiar to the district is rapidly decreasing, murrain and other diseases having of late years carried them off, in far greater numbers than are bred to supply their places. Doubtless the system of perpetual inbreeding, aids in their deterioration. There are some Todar munds on the "Koondah" mountains, but as that range is not in this talook, no information relating to them can be gained until the survey has been extended in that direction. While speaking of the Todar buffaloes, I should mention that a few only of the small calves brought forth by their cows are preserved for perpetuating their stock, and all the rest killed while young, and eaten by the Todars themselves.* If these calves were castrated and reared, they would be most admirably suited from their great strength, to drag proper iron ploughs over the steepest and most difficult ground. The Todars pay an annual tax to Government of 9 Annas and 5 Pice per head on all the female buffaloes herded by them, the bulls being exempt from tax; and, in addition to this, they

Tax paid by the Todars to Government.

* This seems an error, as my own personal enquiry does not tend to confirm this statement.—Ed.

pay a small assessment on grazing land, called "pillooverry" or grass tax, at the rate of one-quarter of the sum fixed as the lowest class assessment for cultivated land per vullum; the quantity of land which they are called upon to pay being estimated according to the number of buffaloes herded at each mund, at the rate of about 10 vullums per 100 head of cattle. The amount of revenue collected from the Todars in 1847 was

	on account of tax on	Buffaloes..................	Rs.	960
and	do. do.	Pillooverry..............	„	400
		Total Rupees...		1,360

The Kothers: 307 souls.

The Kothers rank next to the Todars, according to common tradition, in seniority, as occupants of the Neilgherries.

They are of low caste, equivalent to that of the Pariah in the plains, and consequently are always found dwelling by themselves in isolated villages, of which there are only six on the plateau of the Hills, and generally called after the race "Kother-gherry." Around each village they have lands, considered and admitted by their Burgher or Todar neighbours to be exclusively their own, no disputes about boundaries, or the right to certain tracts, occurring amongst them at any time, so far as I can learn. The Kothers are an exceedingly industrious and useful race. They give all their time to husbandry when the land calls for their care, but when the seed is in the ground and their time disposable, they employ it in all sorts of mechanical avocations, repairing the ploughs of their own and the neighbouring villages, as well as bill-hooks, mamoties, and all other farming implements, and executing a great variety of smith's and carpenter's work.

It is by these people that the buffaloe and other hides of Hill cattle, which are so much prized by the workers in leather in the plains and which should form a very important item in the export list of the district, are dressed and prepared for the purposes of commerce, the Kothers being very expert curriers.

In common with the Burghers they pay "goodoo" in grain to the Todars of their naad, in acknowledgment of their feudal proprietary right over the land which they till, and which it appears the Todars, in spite of their own purity, and the uncleanness and low caste of the Kothers, do not hesitate to receive and eat, though no Burgher would touch grain so polluted. The Kothers are not extensive cultivators, bringing only land enough under the plough to yield the quantity of grain required for the use of the village, with a small surplus, which they barter with the low country traders for iron to carry on their forges.

Hence by far the greater part of the land to which they lay claim in the vicinity of their villages remains waste, and is likely to do so, as long as the present proprietary system continues in force. In some parts of the Hills this land is of a very fine description, which, according to their explanation, is to be ascribed to their having come to these Hills the first of all the agricultural tribes, and thus enjoyed the privilege of selecting the best land.

Their religion is of course idolatrous: their marriage customs and ceremonies are not very dissimilar to those observed amongst the people of the Pariah caste in the plains, and they have no plurality of wives, or of husbands. They are impure and dirty in their habits, eating the flesh of cattle which die by the roadside of disease or in the jungle: hence their neighbours the Burghers, though living ostensibly on amicable terms with them, account it pollution to eat with them, or associate with them in their households.

They breed small cows and bullocks, but no buffaloes, and they have a singular and wasteful practice of never drawing the milk from the cow, and allowing the whole to go to the calf which they kill and eat on feast days.

The total number of Kothers on the Neilgherries up to 31st December 1847, was found to be......................Males, 157 } Total 307 souls, Females, 150 }
ncluding children of both sexes.

The Burghers.

The Burghers or "Vuddaghurs," signifying literally "people of the North," are supposed to have emigrated to the Neilgherries from the northern part of Mysore or Canara, during a season either of famine or political persecution, and finding their soil and climate good, and their pre-occupiers peaceable and disinclined to molest them, they settled on them; and, meeting with success in their early agricultural operations, they soon induced others of their countrymen to follow them, and thus formed the nucleus of the numerous tribe now recognized as the chief and most important portion of the Hill population.

Their villages, which have been already described under another head, are scattered all over the plateau of the Hills, excepting the portions to which I have already adverted, as inhabited exclusively by the Todars, viz., the northern and western parts of the "Todanaad" Division, and the north-eastern angle of the "Parungenaad" called "Kodanaad;" and with the exception of these tracts, a small extent of pasture land in the vicinity of four Todar Munds which occur near

Coonoor and Hoolicull, and the lands in the possession of the Kothers, they may be said to arrogate to themselves a right of direct proprietorship over the whole of the lands comprising the Hill plateau. They admit the fact of their holding it under tribute to the Todars, and render to them the "goodoo," or free-will offering, in acknowledgment of the feudal position of this tribe ; but at the same time they consider the land so far alienated from their possession, that they, its present holders, are empowered to dispose of it to strangers by sale, gift, exchange, or otherwise ; which they accordingly do.

They pay the "goodoo" to the Todars resident in their respective "Naads" or Divisions, who according to their statements pay an annual visit, after the harvest is gathered into the various Burgher and Kother villages, and demand the contribution in kind which is rendered according to the circumstances of the inhabitants, the owner of a rich house giving usually 1 cundagum = 20 kollagums ; and those less opulent from $\frac{1}{2}$ to $\frac{3}{4}$ cundagum according to their means. Sometimes the offerings of the poorer inhabitants are not considered sufficient, and sometimes they refuse to give anything at all, when confusion ensues ; the Todars, according to statements made to me by some of the Burghers, entering their houses and laying them under contribution by force. If such occurrences really do take place it seems likely that the interference of the Civil authorities of the district will, before long, become necessary either to legalize the exaction of the "goodoo" or to put a stop to it ; since, as the law seems at present to stand, a Burgher, from whom a Todar might attempt to enforce its payment, would have a clear right to the protection of the Police, who would be bound, on an appeal being made, to treat the Todar as a trespasser.

"Goodoo" often extorted by the Todars.

Government interference seems called for.

Such contradictory statements, however, are made by the Burghers, some asserting that they are quite contented to contribute the "goodoo," and have no desire to be relieved from it, while others murmur against its imposition in addition to that of the Government assessment, that it is most difficult to discover what their real sentiments upon the subject are—or indeed upon any other in which their interests are, however remotely, concerned.

I may remark in connection with the question of the "goodoo" that when the Burghers make transfers of land, within the limits of what they term their territory, to European settlers and others, no stipulation is ever made for a contribution to the Todars, of a portion of

Transfers of land by the Burghers.

whatever produce may be raised by the purchaser; nor do the Todars themselves ever come forward to urge such a claim, or to remonstrate against such alienations of their rights and property.

Many of the Burghers are said to be (for natives) very wealthy, and this circumstance perhaps has induced, amongst many of them, habits of sloth and sensuality inimical to their moral or physical improvement; but nevertheless, when viewed in comparison with other tribes of Hindoos, they cannot be pronounced pre-eminently indolent, or degraded in their habits. They are utterly illiterate, and their ignorance of the accomplishments of reading and writing are transmitted to their children, since schools for their education are unknown amongst them.

The Burghers, Hindoos of the Siva sect.

Their religion is Hindoo, and they are of the Siva sect, their principal deity however being Rungaswamy, whose temple is situated on the summit of "Rungaswamy's Peak," the easternmost point of the Neilgherries, and in addition to whom they also worship many other inferior divinities, male and female.

There are several subordinate sects amongst the Burghers, the chief of which is that of the "Aroovurs," who assume to be Brahmins, and wear the sacerdotal string over the shoulder; next the Sivacharries, the Wodiars, Kunukars, Burghers and Toriars—the last being the lowest caste amongst the tribe, and generally the poorest. Their ceremonies of marriage and burial do not differ essentially from those observed amongst the Hindoo tribes in the plains, and such differences as exist are only under the first head, and are chiefly remarkable for their indelicacy, and not worthy of notice.

Very superstitious and timid.

The Burghers are a most superstitious timid race, perpetually filled with the dread of evil spirits hovering around them, and ever haunted with fear of the "Coorumburs" (a tribe to be hereafter described), to whose necromancy and demoniac influence, they attribute all accidents and infirmities which befall themselves, their families, cattle or crops. To such an extent is this feeling carried, that murders of the most brutal description have been known to be perpetrated upon the unfortunate Coorumburs, for which, although in general it is found difficult to obtain evidence to convict the perpetrators, Burghers have been tried and executed, much to their indignation and astonishment; since the principle inculcated amongst them appears to be, that to sacrifice a Coorumbur (and in some cases whole families of them), through whose preternatural agency disease has been brought into a village, or murrain amongst their cattle, is the only way in which the evil can be averted, and the anger of the deity of destruction appeased.

Stand in great awe of the Coorumburs.

Yet notwithstanding this intuitive horror of their influence over the common affairs of their lives, they regard the Coorumburs with the utmost consideration in many other respects, looking upon them as priests, or rather enchanters, whose favor must be propitiated to secure their intercession with the geniuses of good and evil in their favor.

For example, in the spring when a field is ready for the seed, the work of husbandry cannot proceed until a Coorumbur has been summoned, a kid sacrificed to a goddess equivalent to Ceres, the soil blessed, and the first handful of seed scattered over it by him. In like manner, a Coorumbur must drive the first plough a few paces, before their work of tillage commences; and at harvest time not a grain or ear is reaped until a small sheaf has been cut by a Coorumbur. For these offices, the Coorumburs receive gifts in money and produce, and finding their interest in the existence of these superstitions, doubtless encourage them by all the means in their power which they can safely employ. The Burghers seem to live in great harmony amongst themselves, ruled by their headmen and elders. They are fond and careful of their families, and pay great respect to the aged, but in character they appear deceitful, ungrateful and false.

Their women and children all labor in the fields at the time of harvest, as well as in preparing the ground for seed; and by this combination of industry it is easy to foresee to what a successful extent their farming operations might be carried, if a better system of husbandry could be introduced amongst them. The total number of Burghers resident on the Neilgherries in December 1847, has been found by the census to be as follows:—

Males....................	3,346
Females..................	3,223
Total Souls...	6,569

including children of both sexes, viz:

In Todanaad..............	2,039
In Parungenaad...........	2,377
In Meykenaad.............	2,153
Total Souls...	6,569

The Erulars.

The number of this singular tribe is small, amounting only to Males......... 225

Females......	236
Total Souls...	461

including children of both sexes. They are found principally in the eastern part of the Hills, where they cultivate the lower slopes, forming the broad deep valleys which run in the vicinity of Rungaswamy's Peak towards the plains. They raise crops of raggee, koralley, shamee, and mustard seed chiefly, but to no great extent, being very improvident in their arrangements, and eating up all their produce at once, without laying any by for the rainy season, when they subsist chiefly on plantains, jack and other fruits, which they cultivate in patches near their villages, and which thrive in consequence of the lower level on which the Erulars are mostly settled. They also work occasionally as coolies on plantations, preferring employment in the jungle to working in the field, and being expert fellers of trees, hewers of planks, rafters, &c. They worship Rungaswamy and some other inferior deities, and enjoy the high privilege of tending the temple and idol on "Rungaswamy's Peak," where two or more of their number officiate as priests at the period of the great festival in August and September, when thousands of Hindoo pilgrims flock to the sacred Peak from all parts of the adjacent country with offerings of all descriptions of produce, and occasionally money. They pay kist to Government according to the nature and quantity of their crops; but they make no offerings to the Todars in the shape of "goodoo," probably from their occupying land rather below the plateau to which the Todars lay claim. When driven to extremities for food the Erulars betake themselves to the jungles on the slopes of the Hills, and, seeming to have no fear for wild beasts, hunt and destroy sambre, spotted deer, jungle sheep and other game, with great expertness. They also search for bees wax, which finds a ready sale in the plains. But many lose their lives in this pursuit, through the bears which are numerous in the eastern part of the Hills, and whose fondness for honey often brings them into contact with the collectors of wax.

Are Priests of Rungaswamy's temple on the Peak.

The Coorumburs are not, strictly speaking, a tribe of mountaineers, since many sects of the same people are found in various parts of the plains, especially towards the southward, and those who do frequent the Neilgherries inhabit the lowest slopes, and are perpetually migrating from spot to spot, erecting their little huts usually on grassy patches, in the midst of the densest and most wild forests. Those who are met with on the eastern side of the Hills are called "Mooloo-Coorumburs," implying "thorny" or jungle Coorumburs, to distinguish them in some degree from the Coorumburs of the west country.

The Coorumburs.

They are small in stature, and their squalid and uncouth appearance

and wild-matted hair might seem to give some cause, with so timid a race as the Burghers, for imputing to them the fiendish and preternatural powers with which their superstition invests them. If a Burgher meets a Coorumbur, not summoned at seed or harvest time, in his path, he will fly from him as from a wild beast; and if too close to escape his dreaded glance, he will return home and resign himself to a fate which he deems inevitable; often in fact inducing sickness by the prostration of body and mind which is thus supervened. I may here mention that a popular belief exists that the Coorumburs have an equal proprietary right in the soil of the Neilgherries, having come to them at a period coeval with, or antecedent to, the migration to them of the Todars. The Coorumburs cultivate some land on the lower slopes of the Hills and raise small crops of dry grain, but they depend for their supplies chiefly on the fees in kind which they receive from the Burghers, for the offices performed by them in consecrating their crops and seed, as has been already described in treating of the Burghers. Those however who are met with in the forests on the western slopes of the Neilgherries are more industrious, employing themselves chiefly in felling timber for the sawyers and contractors, in making baskets, and, to a small extent, in cultivation.

These Coorumburs appear for the most part to come from Malayalum, where they exist in a state of slavery to opulent natives, who claim their persons as their property—a claim, however, not much regarded. The Coorumburs, from their almost always residing amongst the forests, have a considerable acquaintance with the properties of medicinal herbs, gums, and roots, and hence often effect cures of simple diseases amongst the Burghers and others, when called in to disenchant a member of a family supposed to be bewitched. This success is, of course, attributed to preternatural agency, and a failure in their mode of treatment of a disease is usually set down to its baneful exercise, a result which often leads the officiating Coorumbur into trouble. As has been already remarked, it has been found impossible to obtain any return of the number of this tribe, but it must be very inconsiderable.

Employment.

In the preceding description of the different tribes inhabiting the Neilgherries, their habits have been sufficiently set forth to explain the nature of the employment or occupation which each pursues. Following, however, the argument of this synopsis, it may be necessary under this head briefly to recapitulate them.

The Todars.

Their occupation is purely pastoral; their only manual labor being the milking of their buffaloes, and converting portions of their milk into butter and ghee.

They let their herds loose during the day to wander about, almost always unattended by a herdsman, to the annoyance of travellers on the public roads; and, but for the caution observed in approaching these animals, to their great danger.

The life they lead is eminently a most idle and useless one, involving the performance of no offices, and the undertaking of no duties, which tend in any way to the benefit of the community at large. Especially marked by nature as a race upon whom labor, demanding great physical exertion and bodily prowess, should devolve, they are found abjuring the performance of manual labor of any kind, subsisting upon the hard-won earnings of others, and acting no part in the great work of social duty and improvement, which society demands that all its members should co-operate to advance.

The Kothers.

Their occupation is both agricultural and mechanical.

They are tolerably good workers in iron and execute carpenters' work in a rough way. They tan ox and buffalo hides, and make baskets, and their women manufacture the only earthen pots, or chatties, produced on the Hills.

The Burghers.

Their occupation is solely agricultural, and their numbers having of late considerably increased, there is always a superabundance of hands available for employment as carrying coolies and out-of-doors laborers, when their own crops are either in the ground, or reaped and stored, which constitutes them the most really useful tribe on the Hills.

The Erulars and Coorumburs.

Their employment is agricultural, and also, in a measure, vagrant; since, lacking sufficient energy or industry to draw from the soil the utmost of its productive powers, they subsist, between harvest and harvest, upon whatever they can extract from the natural resources of the forests through which they wander.

Languages.

The Neilgherries being situated within the limits of the Coimbatore district, Tamil is the language employed in the public departments and in the bazaars and other resorts of the natives from the low country; but amongst all the Hill tribes Canarese is the colloquial. The Todars have a language peculiar to themselves, but they communicate with the Burgher and other tribes in Canarese. The Todar language has a singular accent, and a quaint original style, and seems to bear no analogy whatever to that

spoken by any other race of natives in Southern India. The Coorumburs have also a peculiar dialect of their own, but it seems to be based on the Canarese.

Condition.

Under this head a very favorable report may be made, as, with the exception of the two inferior tribes, the Erulars and Coorumburs, who, from their improvident and vagrant mode of life, are often in a state of great destitution, all the Hill tribes live in comparative comfort and affluence. This is as to their physical condition; but in regard to their moral state the aspect is not so favorable. The accomplishments of reading and writing seem almost entirely unknown amongst them, while their morals are tainted by the arts of dissimulation, cunning, and falsehood, which seem to be instilled into their minds at an early age. Superstitious to a degree almost incredible, and prejudiced against all innovation and improvement, I fear they offer but a barren field to the German missionaries who have established themselves on the Neilgherries to labor amongst the Hill tribes; and who are endeavouring to form village schools, in the hope of inducing parents to send their children to them for instruction in their own tongue.*

Health and diseases.

Upon this point it is not easy to obtain correct information, as all the natives have an insurmountable aversion to entering a hospital; and though they value and respect the opinion of a medical officer, they are not found to come voluntarily forward to seek assistance and advice. From observation in their villages, and of the coolies and others who come to the houses of European residents for employment, we are led to conclude that all classes of natives located on these Hills, whether of high or low caste, aborigines or modern settlers, enjoy the most robust health, showing that the pure atmosphere and invigorating climate have the same genial effect upon the Native, as upon the European frame and constitution. The most prevalent diseases amongst the Burghers, who may be considered the mass of the Hill population, are small pox, occasionally fever, and an affection of the eyes resembling ophthalmia. The first of these is however the only one which can be called common amongst them, and is the greatest scourge by which they are visited; and as vaccination is not practised, the disease often commits fearful ravages in their villages, carrying off whole families in a brief space of time. There is no doubt that the mountaineers would willingly take advantage of the existence of a Vac-

Small Pox, a prevalent disease.

* Since this was written some success has attended the German missionaries on these Hills.—Ed.

cine Depôt, if one were to be established on these Hills; and as the disease certainly seems local, and peculiarly virulent on them, and as it is totally impossible for the two medical officers stationed in Ootacamund, to quit the scene of their constant and extensive duty amongst the sick officers and their families resident there, to introduce and practise vaccination in the Burgher districts, it would be a great blessing to the district if such an institution could be formed in it, and be the means unquestionably of saving many lives.

Health and diseases of Troops, with the presumed causes of healthy or diseased state, and the treatment, (not strictly medical) found to be useful.

The impending measure for the location of European troops on these Hills will, it is to be hoped, before long, furnish striking and favorable evidence upon this subject. At present it can only be inferred that the beneficial and renovating effect, which even a few months' residence on them produces on the enfeebled constitutions of officers, must in an equal degree be exerted on the condition of the private soldiers who may be sent to them; and that not only physically, but morally; since the constant out-of-doors employment and recreation which they would be enabled, during the greater portion of the year, to find and enjoy, would remove them from the influence of that most demoralizing of all agencies, the dull, monotonous irksomeness of the almost constant confinement to barracks, and of the life of utter idleness which they are compelled to in the plains. To the unfortunate wives and children of the European soldiery the effects of this wise measure will produce incalculable benefit, for it needs only to consult the tables of mortality in the records of almost any European regiment serving in the plains, to perceive, that upon them, and the latter especially, the hardships and sufferings of a barrack life there fall with aggravated cruelty. Under the discipline of a good school, and with constant employment found for them, relieved by the healthful exercise which will always be within their reach, it is not too much to say, that hundreds of lives may be annually saved, many too, possibly to be devoted to the service of the State, in the persons of useful and well educated servants. I think that on the first arrival of fresh troops on the Hills, much care and attention will be necessary to adapt the habits of the men to the entirely new climate (comparatively speaking) in which they will find themselves, avoiding very early and very late parades, and making all guards and sentries put on great-coats before sunset, and wear them till after sunrise, and generally keeping the men out of the influence of the night air as much as possible. The site which I have had occasion to recommend for the new Cantonment, in the valley of Jakatalla, is situated

at an elevation of 6,100 feet above the sea, and enjoys a most temperate and agreeable climate; but the rapid change of temperature which follows the withdrawal of the sun's rays here as in all other parts of the Hills, demands care and precaution, especially in the case of men whose constitutions, and liver especially, have become injured by long residence in the low country.

Men suffering from dysentery will, with care, do well in Jakatalla, at all events in the dry weather, if too much exposure to the sun and to the dry easterly winds is avoided. Indeed there appear to be few diseases contracted in the plains which are not, unless too far advanced, speedily cured here—speaking of the Hills generally—with the exception of liver-complaint, which if abscess has already formed, usually assumes a more aggravated form through the cessation of the action of the skin, after a short residence, and compels the patient to proceed to sea as the only alternative.

Education and mode of pursuing it.

Amongst the Hill tribes it may be said that there is no education whatever. The German missionaries, referred to in a preceding section, are now endeavouring to establish schools amongst the Burghers, and to prevail upon the parents to send their children to them, but I believe with very indifferent success. They have so little ambition or desire to see their children rise beyond the position in which they are born, that reading and writing are looked upon as very unnecessary accomplishments; and as an illustration of this I may mention that a philanthropical gentleman who has settled on these Hills, and who devotes much of his time to the task of attempting the moral regeneration of the Burghers, is only able to draw children to a school which he has established, by the payment of one Anna daily to each! The Kothers, Erulars and Coorumburs are all equally degraded in regard to education, or to the desire to acquire it, and with the Todars it is, of course, quite out of the question.

Amongst the native settlers from the plains the case is very different; in the settlement of Ootacamund there are five native schools, which are attended by many of the children whose parents can afford the small fee payable to the schoolmaster.

The instruction imparted in these schools is, of course, confined to reading, writing, and a sort of arithmetic.

European schools.

There is also a very good school conducted by an European, for the education of the sons of Europeans and East Indians, which is supported by voluntary contributions; and is under the general superintendence of the chaplain of

the station for the time being.* It is situated in Ootacamund, where also two seminaries have been recently established for the children of the better class, one for boys and one for girls, both of which, I believe, are well supported, and prove of great advantage to officers and others, whose means will not admit of their sending their offspring to England, when they have attained the age beyond which it is considered unsafe to keep them in the plains.

Proposed Proprietary School.

It has been in contemplation to establish a proprietary school upon a large scale on these Hills, with a view to rendering the expense to parents as small as possible, while, at the same time, the best system of education should be adopted in the establishment; but, owing to pecuniary difficulties this excellent scheme remains for the present in abeyance.

Charitable Institutions.

Excepting the Government hospital and the dispensary, there is no charitable institution, properly so called, on the Hills. There is an association amongst the European residents of the Cantonment, for granting out-door relief to aged and indigent poor, who attend daily at the door of the Church to receive it in the form of food, money, or clothing; but there is no establishment into which paupers are received and sheltered. The public choultry or caravanserai is intended more for the accommodation of travellers and marketmen from below, than for a refuge for the sick and poor.†

The hospital is in charge of the senior medical officer, but, owing to the prejudice which exists amongst the natives against such an institution, a patient is very seldom received within its walls.

State of litigation and of crime.

The most fruitful sources of litigation are disputes about boundaries of land, trespassing of cattle, and adverse claims to the right of water from particular channels.

These, especially in the Cantonment, run very high at times; but it is

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* A splendid Educational Establishment has since been carried out by Dr. Pope under the designation of "Snowden College and Ootacamund Grammar School."—Ed.

† The most noble charitable Institution established on these Hills, since the above was written, is the "Lawrence Asylum." The object of it is to provide for the children of Soldiers of the British Army, who are serving or have served within the limits of the Presidency of Madras and founded by that great and good man Sir Henry Lawrence. The Institution is located at Lovedale, on the Neilgherries, and since its organization, has met with a large measure of success, by affording children refuge from the trying effects of the climate and other evils incidental to a Barrack life, and also giving to the inmates a sound, practical and useful education, suitable to their condition in life.

to be hoped that the permanent fixing of all boundaries by means of the present survey, will put an end to these difficulties in a great measure.

Crime is certainly not common on these Hills; as beyond cases of petty theft, and these for the most part confined to the Cantonment, the general criminal calendar is a very light one. Murders have been committed, and possibly are so still, at rare intervals, upon the persons of unfortunate Coorumburs, accused of witchcraft, both by Burghers and Todars; but as such deeds are generally massacres perpetrated by a whole village, it has frequently been found impossible to trace the actual murderers. Upon the whole it must be admitted, that in spite of their proneness to lying and dissimulation, all the tribes inhabiting these Hills are free from the stain of serious crimes. Drunkenness and violence are unknown amongst them, and in this respect they offer a striking contrast to the other native residents, who, both Malabars, Mysoreans, and other emigrants from the plains are much addicted to spirits, which are unfortunately to be obtained readily, and at a very low rate.

With regard to the Cantonment of Ootacamund, when the peculiar nature of its native population is considered, consisting as it does of petty traders, Brinjarries, Lubbies, and servants of all castes, and from every part almost of India, combined with the means which all classes possess of obtaining arrack, and also opium, it must be esteemed very creditable to the authorities that so little crime is committed within its precincts.

That such should be the case is doubtless chiefly to be attributed to the constant presence of a magistrate (who is also commanding officer of the district) aided by a tahsildar and cutwall resident on the spot, around which the bazaars and abodes of the native inhabitants are drawn so closely, and so little scattered, as to bring them all readily within the range of a close surveillance.

Police; number, remuneration and efficiency.

The Police of the Neilgherries consists of

Pay.	
Rs. 400 per mensem.	The Joint Magistrate.
,, 50 ,, ,,	The Tahsildar, who is also "Head of Police."
,, 42 ,, ,,	The Cutwall, whose duties are confined to Ootacamund.
,, 17 ,, ,,	The Peishcar, or Tahsildar's deputy, who has charge of the eastern portion of the Hills.
,, 10¼ (Cutwalls and	
,, 7 Sebundy)	5 Duffadars, and
,, 5, 4 & 3½ ,,	75 Peons.

But of these two last, 3 duffadars and 43 peons belong to the Sebundy establishment, and are employed at the proper season in collecting the revenue. Six peons also are exclusively employed in the charge of the forests which are scattered about the environs of the cantonment, to prevent wood-cutters from wantonly destroying them, or cutting in parts where they are prohibited from felling trees. Besides these, 2 duffadars and 20 peons, under the immediate orders of the cutwall, remain in Ootacamund to carry on the police duties of the bazaars.*

The orderly state of the chief settlement, Ootacamund, sufficiently attests the efficiency of the cantonment police, as does also the comparative absence of crime in the Hill district generally, that of the Sebundy or rural police.

Manufactures.

There are no manufactures carried on on the Neilgherries, unless a few earthen pots made by the Kothers, and principally at a village near Soloor, to the westward of Mootenaad, may be called by that name. From the great command however of water power all over the Hills, and especially near the summits of the passes or ghauts, many of the products of the plains requiring to be wrought by heavy or steadily driven machinery, such as cotton for yarn, oil seeds, &c., might, no doubt, be profitably converted from the raw state on the Neilgherries, or on their lower slopes. The wheat raised on them might also be ground into flour by machinery turned by water, very economically; and it seems strange that at the present time, although a large quantity of floor is consumed in the settlements, and considering how many Europeans who must have some knowledge of ordinary machinery are resident on the Hills, not one flour mill is in existence, all the wheat being ground by manual labor in the common ancient native mill of two circular stones, the lower fixed and the upper one revolving.

Capital employed.

No capital to any extent is invested at the present time except in mulberry and coffee plantations, the amount of which I have no means of ascertaining, and in house-building in the cantonment, which is not considerable. The return on the latter investment appears to be about 15 per cent.†

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* Among other changes, a new system of Police, forming part of the Mofussil Police of India, has replaced the old Establishment alluded to above, and more recently an European Officer under the designation of Assistant Superintendent has been placed in charge of the Police on this plateau. The old Civil and Sessions Court, is, from the 1st August 1868, to be replaced by a Commissioner and an Assistant, with extended powers of jurisdiction, in all Civil, Judicial and Criminal cases on these Hills.

† Large sums are now invested in Coffee, Tea and Cinchona.—Ed.

Imports.

The following articles are imported into the Hill district from the adjacent provinces of Malabar, Mysore and Coimbatore:—

Sugar,	Turmeric,	Oils,	Arrack,
Salt-fish,	Cocoanuts,	Almonds,	Dried Fruits,
Sheep,	Bullocks,	Poultry,	Gunpowder,
Sulphur,	Lime,	Furniture.	Artificer's Tools,
Gram,	Raggee,	Cholum,	Betel Nut,
Ghee,	Spices,	Limes,	Native Peas,
Cotton Cloth,	Salt,	Tobacco,	

and of European articles : wines and spirits, wearing apparel, cambrics, woollens, flannels, muslins, shoes, books and stationery, earthenware and glass, hardware, groceries, beer and porter, candles, and all kinds of supplies for the table.

To this list, strange to say, is to be added wheat, which is imported to some extent from Mysore, where it is cultivated on the higher steppes of the table-land. The bakers buy it because it is cheaper than the Hill wheat, although not nearly so good, and mixing it with the corn purchased from the Burghers, turn it to profitable account. There is generally a difference of 3 to 4 seers per Rupee in the prices of the Mysore and of the Hill wheat, in favor of the former, in spite of the extra cost of transit to the Cantonment market up the Seegoor Ghaut, a circumstance which tends to support the idea of the misappropriation and mismanagement of this district through the ignorance and apathy of the Hill cultivators.

Exports.

The exported articles are coffee, silk, potatoes, barley, hides, opium, wax, dammer or resin, and wheat, which being bartered by the Burghers for low country necessaries with the itinerant traders, thus becomes an article both of import and export.

No statement can be furnished of the quantities of the abovementioned goods which are imported or exported, since in consequence of the transit duties having been abolished, they pass through no office in which their amount might be registered.

Exchange.

Money is readily obtainable for bills on Bombay or Madras from the native merchants, who, having disposed of their goods on the Hills, are anxious to remit the proceeds for re-investment. Hence cash on such bills is generally obtained at par, or at the utmost at 1 per cent. discount. No other

exchange operations are carried on in the settlement, all business with England being transacted through agents at Madras or Bombay.*

Weights.

The weights in use in the bazaars of the three settlements are: The maund of 25 lbs. avoird.
„ viss „ 2 „ „
The pound of 40 Rs. or tola's weight.
„ seer „ 25 „ „ „

The Burghers sell all their produce by measure, excepting opium, which they rate at so much per seer of 24 Rupees' weight, being one Rupee under the seer of the bazaars.

Measures.

The bazaar measures are the seer, ½ seer, and ¼ seer, in use all over the country. The Burghers sell their grain by the "kolagum," the contents of which when heaped up is about 226 cubic inches, or somewhat more than 2 seers.

Coins.

The coins issued from the Honorable Company's mint are the only monies in circulation on the Hills, viz., Rupees, half and quarter Rupees, 2 Annas, quarter and half Annas, and Pice.

It is supposed that a good deal of coin goes out of circulation in the district, owing to the Burghers and others either hoarding it by burying, or getting it converted into ornaments.

Lending and borrowing.

Money is lent in the bazaar amongst the natives at the usual usurious rate of interest: 2 per cent. being given for loans with security of jewels or other convertible property, per month, and 3 per cent. per month for money lent on personal security only.

Modes of transit and communication.

The Neilgherry district communicates with the neighbouring provinces by means of six passes or ghauts, the roads in which have been cut and kept in repair at the public expense, with the exception of one, the "Manaar" or "Soondaputty" Ghaut which has gone out of general use. The only one of these passes which is ascended by wheeled conveyances is the "Seegoor;" the mode of transit on all the others being by bullocks, coolies, and, to a small extent, by asses. By the "Seegoor" Ghaut, however, cart loads of 1,000 lbs. weight, or 2

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* A Branch of the Madras Bank has now been opened.—Ed.

candies, are brought up, an additional pair of bullocks being required to help the cart over the steepest parts of the ascent.*

The Goodaloor Pass.

Commencing at the N. W. angle of the plateau the first pass which presents itself is that leading from Neddiwuttum to Goodaloor† forming the communication between the Hills and Cannanore, Tellicherry and the western coast towards Bombay through the Wynaad country, and also with Calicut by the most direct road which exists to that city; descending the Carcoor Pass, and passing through Nellumboor parrallel to the Beypoor river to the coast. The "Koondah Ghaut," having however obtained a preference over this line for the journey to Calicut, the tappal-runners have lately been taken off it and posted along the other; in consequence of which the ferries, by which several large streams are crossed, are not now regularly attended, and, through the absence of a constant and sustained traffic along the line, the jungle is encroaching and becoming rank and dangerous, both from malaria and beasts of prey. The public bungalows also along this line are badly situated as regards health; but this I understand will before long be obviated by the erection of a new one in an open space clear of the encroachments of the jungle, and free from fever. It is much to be regretted that this road should be allowed to fall into disuse as the line is a most convenient one for reaching the Hills from the coast by Calicut where all invalids from Bombay now land; and as the ghaut, being a short one of only 5½ miles, and on a very good trace, can be easily and economically kept in repair.

The Rajah of Nellumboor is, I believe, bound to keep up the ferries between the town of that name, and the foot of the Carcoor Pass, so that the expense of keeping this line of road open would fall very lightly upon Government. The road on from Neddiwuttum into Ootacamund is an excellent one, and has been recently repaired throughout, so as to be perfectly practicable for laden carts. The ghaut is also in good order and a laden bandy can descend it with safety; but the ascent is impracticable in consequence of some very steep acclivities upon which the road is carried. The Pykara or Moyaar river forming the boundary between

* A Cart-track extends the whole way from Mettapolliem to Ootacamund, and one-half of a carriage-way is completed, which will facilitate travelling considerably on being finished.—Ed.

† A new Road from Ootacamund to Neddiwuttum and thence a new Ghaut at a gradient of 1 in 18 is now being constructed, which joins the Government Imperial roads at Goodaloor running down the Carcoor Ghaut to Nellumboor and Maumbat; hence the abandonment of the Sispara Ghaut, referred to on page 28.—Ed.

the districts of Malabar and Coimbatore, the road from thence to the westward is under the Collector of the former province, by whom the greatest attention appears to be given to it.

The Seegoor Pass.

This ghaut which is the most frequented of all, in consequence of its being practicable for laden carts and other wheeled conveyances, is carried down the northern face of the Hills, commencing the descent near Mootenaad, and ending it near the village of "Seegoor." By this pass the communication is kept up with Bangalore, Madras and all places to the northward, and the chief bulk of European supplies, heavy baggage, horse-gram, rice, &c., comes to the settlement by it. It also affords the means of transit for the teak timber used on the Hills in the form of rafters, planks, &c., the road passing near the forests where teak trees are cut under sanction of Government, about Tippacadoo and Musneumcoil. The trees are felled by Coorumburs and others, and are then, after being lopped and roughly dressed, dragged on rude bandies by buffaloes to the road-side, where they are sawn into building pieces, and sent on bullock bandies to the Ootacamund market by the Seegoor Ghaut.

The Kotergherry Pass.

In the north-east angle of the plateau of the Hills, at Kotergherry is another ghaut communicating with Matepolliem in the low country, and thence to Coimbatore and the Salem road.

This is the oldest road cut for the ascent of the Neilgherries at the expense of Government, and it led formerly to the original sanitarium at Dimhutty. It has been constructed in a very sound and substantial manner originally, but having been neglected and suffered to fall into very bad order, it was found necessary last year to give it extensive repair throughout, owing to which it is now in a very practicable state, though too steep for wheeled carriages.

This, and all the other ghauts, could be kept in repair at a very trifling expense, if some person were entertained, whose duty it should be to go down the entire line once a month with coolies, to see that no drains or channels had got choked; for the interruption of one of these outlets for the heavy falls of rain which now and then occur, and which might, if remedied in time, be done by one man in an hour, often causes breaches in the road which it takes twenty or thirty men to repair. This ghaut is of considerable importance to the eastern part of the Hills, as a great deal of traffic in the produce of the coffee plantations and of the Burghers' lands goes on by it; and large quantities of low country goods are brought up it for sale and barter. It is also favorably situated for

gaining the summit of the Hills on the eastern side, as the ascent of a long spur on which the lower part of the road is carried, is commenced almost immediately after quitting Metapolliem, without having to pass through much low jungle.

Troops therefore marching to the Hill cantonment could, by leaving their camp at Metapolliem at day-break, ascend into a cool climate before the sun was high enough to distress them.

The Coonoor Ghaut.

The Coonoor Ghaut on the other hand, which is the next to the eastward, does not commence its ascent until after 7 miles of bad jungle have been passed through after leaving Metapolliem. It is however the most frequented by travellers in palanquins and on horseback, as the road on from the summit at the settlement of Coonoor leads more direct from Ootacamund than that from Kotergherry, besides having the advantage of a public bungalow conveniently situated near Coonoor, while at Kotergherry there is none. The Coonoor Ghaut has been very well constructed, especially the lower half of it, which could be ascended by laden carts having an extra pair of bullocks. The upper part has not been so well traced, the gradients being less favorable, and irregularly arranged. There is an immense traffic on this ghaut entirely by bullocks, which ascend it by thousands on the Ootacamund market day, and indeed almost daily, laden with every description of low country produce and other supplies. Travellers from Madras and the South almost invariably come by this roadas the journey from the east coast by Salem is both the most easy, and occupies less time than by Bangalore and Seegoor.*

The Mailoor Ghaut.

The Mailoor or Soondaputty Ghaut. appears in former years to have been much frequented, by travellers journeying from the eastern parts of the presidency by Coimbatore to the Hills, from which town there was a road to Soondaputty, a village at the foot of the southern part of the Neilgherries, though what the direction of it was, I am unable to say, as the country between Coimbatore and that part of the base of the Hills appears never to have been surveyed, and is left blank in the Atlas of India. This

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* Owing to the facilities afforded by the Railway, which runs within 50 miles of Ootacamund, the Bangalore route by the Segoor Ghaut has been abandoned by travellers generally. Under the auspices of Government, a survey has very recently been completed, for a tramway from Coimbatore to Metapolliem, which when finished will reduce the distance to 25 miles.

The new Coonoor Ghaut is being completed rapidly—the first 4 miles is now open for wheeled traffic, at a gradient of one in nineteen.

ghaut which gains the summit of the Hills near "Shoondabetta" is only now used by smugglers and by the Burghers who cultivate land about Mailoor and Keel Koondah, to carry down their produce for barter for clothes, tobacco, salt, &c. The remains of a very good road still exist from the top of this ghaut all the way to Ootacamund, but it has become impassable in many places, owing to bogs having formed in the hollows and closed over it.

The Sispara or Koondah Ghaut.

This magnificent ghaut forms the line of communication between the western coast (Calicut) and the Neilgherries, across the "Koondah" mountains.* Viewing this latter tract as one likely to become, before long, of the greatest value and importance as a producing country, I should describe the Sispara Pass as one to which attention should be particularly drawn. Since however the survey of the "Koondahs" has not yet been executed, it will be proper to defer a description of it and of the public buildings and bridges which have been lately erected along the line of road by which Ootacamund is approached from its summit, until it can be introduced into the "Memoir" prepared to accompany the map of that part of the Hill district, together with a table of roads and distances from the nearest halting places in the plains at the foot of the respective ghauts.

Communicaton by water.

None, internal, or, naturally, with any other district.

Impediments and their duration.

Impediments very rarely occur on any of the lines of communication to the Hills. Sometimes in seasons of long continued rain masses of overhanging rock, getting loosened by the washing away of the soil beneath, fall upon the road and cause some inconvenience, but never to the extent of suspending the traffic upon any of the ghauts. The most serious impediments have been occasioned by the washing away of the bridges near the foot of the passes, as at Tippacadoo near Seegoor, and Metapolliem, during the past year. But a temporary remedy being at hand, only a brief suspension took place in the transit of goods along those lines of road. Along the lines of road on the plateau diverging from Ootacamund to the summits of the various passes, impediments more frequently occur, owing to the perishable nature of the timber with which small bridges are constructed to carry the road over channels, and to the sinking of the rough stone causeways laid across swamps. By degrees however a better system is being introduced, and more perma-

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* Vide second foot note page 73.

nent works are now taking the place of these temporary and inefficient structures. It is unwise, and I think bad economy, to construct any road bridges on these Hills of jungle wood, unless it has been cut long before it is required for use, and thoroughly seasoned, as the alternations of heat and cold are so very extreme, and the changes of weather from dryness to moisture so continuous, that the fibres of unseasoned wood soon yield to their influence. Only teak beams should be used, unless jungle wood can be cut and kept to season for use in convenient situations, or unless a brick arch is not considered expedient.

Fords.

Fords are numerous on the Hills, but are all insignificant, as being merely the crossings of small streams, except near Pykara where there is a good ford across the Moyaar, over a dyke of trap rock which runs at right angles to the course of the stream.

Ferries.

The only ferry on the Hills is that near the public bungalow at Pykara, for carrying the road to Neddiwuttum across the Moyaar.* It is used by travellers in palanquins and on horseback, as also by carts; but the ford, which is close by, affords the readiest means of crossing to foot passengers. The ferry boat which consists of a platform laid on two canoes or barges, and is moved by hauling on a cable of twisted rattan stretched from bank to bank, is the property of Government, and two ferry men to work it are maintained at the public expense, receiving 6 Rupees each per mensem. No toll is levied on passengers making use of it.

Bridges.

There is a substantial brick bridge at Coonoor crossing the great stream which descends the pass at that place; another on the Neddiwuttum road about half-way between Ootacamund and Pykara; one at Ootacamund connecting the extremities of embankments run out from bank to bank of the lake to form a road across it; and another at the entrance of the cantonment by the Coonoor road over the stream which feeds the lake. These bridges are all single-arched, but the span is inconsiderable, and they are not worthy of more particular description. Two large and substantial timber bridges have been recently constructed on the Koondah road, one over the principal feeder of the Bowany (called by the Burghers the "Porthy" or "Porutty" river) and the other at the entrance of the "long valley" on the Koondahs, which, together with the bridges which occur along the Sispara Pass, will be described in the Koondah memoir.

* Since the above was written, a good substantial bridge has been erected.—Ed.

There are innumerable small junglewood bridges upon all the lines of road over petty streams and nullahs, which do not demand particular description.

Revenue derived from Post Office, Rs. 13,000.

The net revenue of the Post Office for the year ending 31st December 1847, after deducting abstracts for the year, amounted to Rupees 12,953-12-5.

Taxation.

In addition to the land tax or assessment already fully described in the Table at page 26, the quit-rent on lands held by Europeans, and the tax on the Todars, buffaloes, described at page 56, may be enumerated the excise or tax on arrack, sold on the Hills, which is collected by farming out the monopoly of the right of selling the spirit, as is customary in all districts under this presidency; and the "Koopooverry," a municipal tax levied by the cutwal on all householders in the bazaars of the cantonment for the maintenance of a department of scavengers, &c., for keeping the streets clean. The following is a statement showing the gross amount of revenue derived from each source referred to in the Memoir, in 1847, viz.—*For the Coimbatore Talook of the Neilgherries :—*

Sources of Revenue and produce of each tax. Fusly 1256, or A. D. 1846-7.

Assessment in lands from Burghers, &c., including Todar's buffalo tax and Pullooverry, and quit-rent on lands of Europeans	Rs.	7,820
Arrack contract, sold for	,,	16,300
Koopooverry or scavenger's tax, surplus after expenses	,,	300
Rent of a shop in the bazaar belonging to Government	,,	24
Fines levied in the Police Court	,,	875
Stamped paper and transfers	,,	126
Post Office revenue	,,	12,953
District postage realized	,,	164
For the Coimbatore portion—Total Revenue.	Rs.	38,562

The revenue derived from the Malabar, or Western portion of the Neilgherries, amounted to about 700 Rupees.*

Total expenditure on account of charges, per mensem...Rs. 2,089-4.

* The amount in 1243 Fusly or A.D. 1843-4, was Rs. 649-3-2.

Mode of collection.

The land tax or assessment on cultivated lands is collected by the tahsildar and peishcar who make a progress through their respective divisions, accompanied by the ghomastahs and sebundy peons, and collect it according to the rate fixed by the ghomastahs on inspection of the state of the crops on the land. The excise duty on arrack is collected by a sale of the privilege to one individual, from whom the amount is received without further trouble to the Government functionaries. The quit-rent is collected upon bills sent to each landholder signed by the Collector, and the amount received by the ghomastahs who attend with the document. The "Koopooverry" is collected by the cutwall as already stated. All fines levied for misdemeanor in the tahsildar's or magistrate's court, are paid into the talook treasury. The receipts of the Post Office, after deducting the amount of the monthly abstract for the pay of the office establishment, are paid into the talook treasury.

The district postage is received from parties sending letters to Seegoor and other places in the talook, to which no regular mail is sent from the Post Office.

The Principal Collector visits the district once a year on "Jummabundy," when the revenue accounts are settled for the past year, and all complaints of over-assessment, examined into and adjudicated.

Number in Sebundy or other Corps engaged in collecting revenue.

The total number of peons employed in the collection of the revenue is 43, with 3 duffadars and 3 ghomastahs; the peons and duffadars are also available for general police duties under the orders of the Tahsildar, who, next to the Joint Magistrate, is the head police officer of the Hill district.

History and antiquities.

The utmost obscurity hangs over the early history of the Neilgherry Hills, for beyond the period of the immigration of the "Todars" or "Todawars," tradition amongst the present inhabitants, affords no clue whatever to trace it. That they have been in former ages inhabited, and that by a very peculiar race, evidence sufficient to show is furnished by the existence of the numerous "cairns," or rude tombs found upon the summits of almost all the loftier mountains in every part of the Hills, the origin of which is so remote, that the Todars, recognized as the most ancient inhabitants, have no tradition amongst themselves bequeathed by their ancestors, which even guides us to a surmise, as to the race of people by whom they were constructed. As affording thus almost the only land-marks, by which speculation as to the ancient state of this remarkable region can be guided, these "cairns" seem to merit a brief descrip-

tion. They are invariably situated, as has been already mentioned, on the highest summits of the Hills, sometimes single, but more frequently in groups or rows of from 3 to 6. They are circular in form, raised with large unhewn blocks of stone 4 feet or more above the level of the ground, and varying in diameter from 12 or 15 feet to 25 or 30. The interior is hollowed out to some depth below the original surface, usually until the solid rock is reached, and the space thus cleared filled with earthen pots, with the covers strongly luted on, pieces of bone, charcoal and fragments of pottery, all tightly packed in a soil so black and finely pulverized, as to give cause to suppose it to be decomposed animal matter. On brerking these pots or urns, which many of them are in the form of, they are found to contain ashes, charcoal, and pieces of half-calcined bones; with sometimes a small quantity of a pure scentless fluid, which in two instances I found to be pure water slightly impregnated with lime. Images of tigers, elks, bisons, leopards and some domestic animals, pieces of half-decomposed bronze resembling spear heads, tripods, &c., are also found occasionally, mixed with the other remains; but it is a singular fact that on breaking up the strong pavement of slabs of stone, with which the cairns are covered in, and mining down until a second pavement is come upon, which, from its tightness and weight has, to all appearance, never been disturbed since it was first laid, we find on removing it that the contents of the vault below, instead of being laid in the order befitting the repose of consecrated ashes, are generally smashed and broken up and mixed with the soil, leaving barely one or two pots of bones and ashes entire, just as though the pickaxe of the destroying explorer had been already there.

Cairns.

Todars believed by some to be descendants of the ancient Scythians.

Some ingenious writers have endeavoured to build up upon the evidence of these cairns a theory, to the effect that their constructors must have been a tribe of the ancient Scythians, who having wandered into this remote part of Asia, preferred a settlement on the Hills they had discovered, to the hopeless undertaking of a return; and pursuing their hypothesis, and discovering instances in the customs and habits of the present Todars, which assimilate them to the race which history describes under the name of Scythians, they pass on to the conclusion that their ancestors were the founders of these tombs, and the descendants of the ancient Scythians. But this assumption is in my opinion erroneous.

Cairns afford no clue to the History of the Todars.

So prejudiced and bigoted a race as the Todars would naturally cherish with the utmost veneration and solicitude any vestiges of mortality, which their most vague

tradition should point to as monuments of their ancestors; and therefore when we find them offering not the slightest objection to the cairns being broken open and their contents rifled, and even voluntarily guiding strangers to unexplored ones, aiding them in the work of destruction, it is reasonable to conclude that they form no link of communication between the present race of Todars, and any tribe of people by whom these singular monuments may have been raised.

All clue being thus lost, it would be idle to follow out further any speculation as to the history of the Neilgherries prior to the first coming to them of the Todars, for as no coins or inscriptions or even hieroglyphics have been found in any of the cairns, or on their contents, there exists no evidence whatever by which inquiry could be guided into the right course.

With the Todars then commences the only (partially) known history of the Neilgherries.

At the time of their immigrating, they probably found no aboriginal inhabitants settled on them, and seeing, in the solitary and inaccessible character of the mountain region which they had discovered, a fitting spot for the undisturbed exercise of their singular religion, and peculiar pastoral habits—for the former of which they had possibly endured persecution amongst the tribes of the plains—they determined on permanently occupying it. Ages, according to their belief, must have passed while they remained in undisturbed possession of the Hills, extending over such a space of time, that they express their belief that the founders of their tribe were created on them; until at length a small band of Kothers found their way up from the plains, and besought permission to till certain tracts of land which they indicated. From this era may be said to have commenced the self-arrogated sovereignty of the Todars over the land forming the plateau of the Neilgherries, as, conceding the privilege sought for by the new comers, they stipulated that a certain proportion of all the grains which they might produce from the soil, should be annually presented to them as "goodoo" or tribute, in acknowledgment of their feudal right over the territory. Not long after this, and according to their traditions, 3 or 4 centuries ago, a party of "Burghers," or "Buddughurs" emigrated from the "North country," (probably the Northern part of Mysore and Canara,) and came to the Neilgherries; and being good cultivators, at once perceived the advantages offered to them in the virgin and rich soil which they saw on all sides. They accordingly appear to have obtained permission to settle and cultivate land, upon the same terms as those granted to the

The coming of the Kothers to the Hills.

The coming of the Burghers.

Kothers, and inviting more of their brethren to join them, they soon swelled into a numerous tribe and spread over the Hills, constructing their villages, and enclosing their fields (and doubtless clearing away much forest) in all directions. I can find no evidence of any sovereign ruler having been acknowledged amongst the Hill people, until about a century before the reign of Hyder Ally in Mysore, when according to the tales of the Kothers and Burghers, there were 3 princes or chiefs who had sway over them, one in Todanaad who resided in a fortress called Mullaycotta, the walls and ditch of which still exist on a Hill to the eastward of the village of "Shoolooroo," and westward of Mootenaad and the Seegoor Pass, one in Meykenaad in the fortress, the ruins of which are now called "Hoolicul Droog" situated on a lofty ridge overlooking the Coonoor Pass, and a third in Parungenaad in a fort, the site of which is still pointed out near Kotergherry and called "Konagerry," though no vestige of a fort remains now recognizable. Their traditions state that at this time, in consequence of disputes between the Burghers and Kothers regarding their respective boundaries, a general settlement of their lands took place under the auspices of the three chiefs, when the lines of demarcation were definitively fixed; and though only by oral indication, in consequence of the ignorance of reading and writing which then, as now, prevailed, the limits of the territory of each tribe were so distinctly identified, that ever since, up to the present time, no disputes about them have ever been known to occur.

The 3 princes or chiefs of the Neilgherries.

What became of these three chiefs, cannot be guessed from their traditions: but it seems probable, that Hyder Ally having sent emissaries to lay the Hill people under contribution, had his attention called to the value of the territory, both as a producing district and as a strong post, from which he might harass his enemies in Malayalum and Coimbatore. He accordingly appears to have seized upon two of the three forts which commanded the passes to those countries, viz., Hoolicul Droog and Mullaycotta, and having deepened their ditches, heightened their walls, and otherwise strengthened them, he put strong garrisons into them, which both controlled the Hill tribes, and observed and harrassed the kingdoms below them. This tradition is borne out by the present appearance of these two forts, which although partially ruinous, yet retain sufficient evidence of comparatively modern occupation, while the third (Konagerry,) has become entirely obliterated. With Hyder the system of taxation must first have commenced on the Hills, and the imposts

Hyder Ally lays the Hill people under contribution.

Taxation by Hyder.